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UNIVERSITY OF ALBERTA

AGRI-PROCESSING AND RURAL DEVELOPMENT: LOCATIONAL TRENDS, PUBLIC POLICY AND LOCAL INFLUENCES IN ALBERTA 1975-1991

by

PATRICK G. ENRIGHT

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of MASTER OF ARTS.

DEPARTMENT OF GEOGRAPHY

EDMONTON, ALBERTA

SPRING, 1994

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ABSTRACT

The lack of jobs is at the core of rural development problems. The development of an agri-processing industry is an option for rural communities to improve their viability.

This study demonstrates that rural agricultural communities, close to metropolitan areas, and those with a potential for agricultural diversification, are most likely to benefit from such development. Rural communities in Alberta have benefited through growth in the number of plants, changing locational trends, favourable public policies, and particularly, from factors that influence them at the local level.

Restructuring, diversification and locational sorting by plant size, has taken place. Larger plants have tended to locate in town and rural locations, while smaller plants tend to locate in city and metropolitan areas. Policies that promoted rural location of agri-processing have had positive impacts on rural employment. In southern Alberta, positive impacts on a rural community have also ensued from the development of agri-processing industries through the diversification of agriculture. This resulted in a younger population, higher family incomes and lower unemployment. Factors that facilitated such developments include: physical conditions, availability of capital, entrepreneurial ability, experience of a different agriculture, a dynamic local development institution, local community support and the availability of marketable, unique, agricultural products. Future policies need to build on these factors and to differentiate the different types of rural space to allocate resources accordingly.

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TABLE OF CONTENTS

CHAPTER		PAGE
1	INTRODUCTION	1
2	LITERATURE REVIEW	6
	Agricultural Geography and Agribusiness	6
	Theoretical Approaches	9
	Traditional Agricultural Geography	9
	Political Economy	11
	Role of the State	16
	Location Theory	20
	Rural Sociology	23
	Agri-Processing Location	25
	Agri-Processing and Rural Development	30
	Conclusion	38
	Notes ...	40
3	METHODOLOGY	42
	Methodological Approach	42
	Research Questions	42
	Data Sources and Collection	43
	Documentary Sources	43
	Questionnaire	45
	Fieldwork	46
	Data Analysis	48
	Documentary Data	48
	Questionnaire Data	51
	Fieldwork Data	52
	Data Presentation	52
	Notes	54
4	ANALYSIS OF EMPLOYMENT AND LOCATIONAL CHANGES	55
	Limitations on the Quality of the Data	55
	Locational Analysis	57
	Plant Location by Settlement Type	58
	Product Group 1: Meat, Poultry, Eggs and Fish	64
	Product Group 2: Fruit & Vegetables, Grains, Oilseeds and Special Crops	67
	Product Group 3: Dairy and Honey	69
	Product Group 4: Animal Feeds, Forage and Pet Foods	71

CHAPTER PAGE

Product Group 5: Bakeries, Confectionary and Snack Foods ... 73
Product Group 6: Specialty Foods, Pasta and Miscellaneous ... 74
Plant Location by Employment Size ... 79
Product Group 1: Meat, Poultry, Eggs and Fish ... 84
Product Group 2: Fruit & Vegetables, Grains, Oilseeds and Special Crops ... 86
Product Group 3: Dairy and Honey ... 88
Product Group 4: Animal Feeds, Forage and Pet Foods ... 89
Product Group 5: Bakeries, Confectionary and Snack Foods ... 93
Product Group 6: Specialty Foods, Pasta and Miscellaneous ... 95
Questionnaire Locational Responses ... 98
Conclusion ... 101
Notes ... 105

5 ANALYSIS OF THE IMPACT OF PUBLIC POLICY ... 108

Alberta Agricultural Processing Assistance ... 108
Evaluation of Assistance Programs ... 112
Questionnaire Response ... 115
Programme Importance and Impact on Employment ... 120
Location and Residence of Employment Created ... 125
Local Impacts ... 130
Future Trends ... 135
Conclusion ... 137
Notes ... 139

6 CASE STUDIES OF TWO COMMUNITIES ... 140

Community Background ... 141
Historical Background ... 141
Location and Physical Background ... 143
The Agricultural Base and the Agri-Processing Sector ... 147
Local Government ... 153
Impact of Development or Lack of Development ... 156
Demographic Analysis ... 157
Income and Employment ... 161
Conclusion ... 167
Notes ... 170

CHAPTER PAGE

7 CONCLUSION AND POLICY IMPLICATIONS 172
Locational Change 172
Impact of Government Policies 175
Policy Recommendations 177

BIBLIOGRAPHY 179

APPENDIX A: Questionnaire 186

APPENDIX B: Reminder Letter 192

APPENDIX C: Second Reminder Letter 194

APPENDIX D: Fieldwork Interviews 196

APPENDIX E: Product Groups 198

APPENDIX F Codes for Location/Relocation Questionnaire Response 200

APPENDIX G Tables 202

LIST OF FIGURES

FIGURE		PAGE
2.1	The Vortex Model	12
4.1	Location of Alberta's Agri-processing Industry for 1975, 1979, 1987 and 1991	59
4.2	Shift in Plant Locations 1975 to 1991 by Product Group	65
4.3	Plant Location by Employment Size for 1975, 1979, 1987 and 1991	80
4.4	Location of Product Group 1 Plants by Employment Size for 1975, 1979, 1987 and 1991	85
4.5	Location of Product Group 2 Plants by Employment Size for 1975, 1979, 1987 and 1991	87
4.6	Location of Product Group 3 Plants by Employment Size for 1975, 1979, 1987 and 1991	90
4.7	Location of Product Group 4 Plants by Employment Size for 1975, 1979, 1987 and 1991	91
4.8	Location of Product Group 5 Plants by Employment Size for 1975, 1979, 1987 and 1991	94
4.9	Location of Product Group 6 Plants by Employment Size for 1975, 1979, 1987 and 1991	96
4.10	Agri-processing Plant Relocations	100
5.1	Questionnaire Response by Product Group	116
5.2	Respondents Participation in Government Assisted Projects	119
5.3	Employment Created in Government Assisted Projects	123
5.4	Location of Jobs Created in Government Assisted Projects	126
5.5	Employee Residence of Jobs Created in Government Assisted Projects	128

FIGURE		PAGE
5.6	Level of Raw Materials Purchased Locally	132
5.7	Difficulty in Finding Qualified, Skilled Labour Locally	133
5.8	Future Employments Trends	136
6.1	Number of Farms Classified by Type - 1987	150
6.2	Population Change 1951 - 1991	158
6.3	Average Family Income - 1986	163

LIST OF MAPS

MAP		PAGE
4.1	Settlement Types and Locations, Alberta 1991	61
4.2	Alberta Location Changes, Alberta 1975 - 1991	62
4.3	Product Group 1 Plant Changes, Alberta 1975 - 1991	66
4.4	Product Group 2 Plant Changes, Alberta 1975 - 1991	68
4.5	Product Group 3 Plant Changes, Alberta 1975 - 1991	70
4.6	Product Group 4 Plant Changes, Alberta 1975 - 1991	72
4.7	Product Group 5 Plant Changes, Alberta 1975 - 1991	75
4.8	Product Group 6 Plant Changes, Alberta 1975 - 1991	77
5.1	Location of Government Assisted Job Creation in Alberta, 1975 - 1991	129

LIST OF TABLES

TABLE		PAGE
G4.1	No. of Plants by Settlement Type for 1975, 1979, 1987 and 1991	203
G4.2	Shift in Plant Locations - 1975 to 1991	204
G4.3	Plant Location by Employment Size	205
G4.4	Location of Product Group 1 Plants by Employment Size	206
G4.5	Location of Product Group 2 Plants by Employment Size	207
G4.6	Location of Product Group 3 Plants by Employment Size	208
G4.7	Location of Product Group 4 Plants by Employment Size	209
G4.8	Location of Product Group 5 Plants by Employment Size	210
G4.9	Location of Product Group 6 Plants by Employment Size	211
G4.10	Frequency of First, Second, and Third Factors for Current Location	212
G4.11	Frequency of First, Second, and Third Factors for Relocation	213
G4.12	Frequency of First, Second, and Third Factors for Anticipated Locational Change	214
G5.1	Questionnaire Responses by Product Group	215
G5.2	Respondent Plant Background	216
G5.3	Participation in Government Assisted Projects by Respondents	217
G5.4	Importance of Government Assisted Projects to Investment Decision	218
G5.5	Employment Impact of Government Assisted Projects	219
G5.6	Employment Created in Government Assisted Projects	220

TABLE		PAGE
G5.7	NPA and APMA Projects and Offers by Industry Sector	221
G5.8	Location of Jobs Created in Government Assisted Projects ..	222
G5.9	Employee Residence of Jobs Created in Government Assisted Projects	223
G5.10	Level of Raw Materials Purchased Locally	224
G5.11	Difficulty in Finding Qualified, Skilled Labour Locally	225
G5.12	Employee One-way Commutes to Work by Settlement Type .	226
G5.13	Future Employment Trends	227
G6.1	Farms Classified by Type - 1987	228
G6.2	Crop Acreages - 1991	229
G6.3	Population Change 1941-1991	230
G6.4	Active and Dependant Populations 1986 & 1991	231
G6.5	Family Income and Labour Force Participation Rates, 1986 .	232
G6.6	Bow Island Employment 1974 & 1986	233
G6.7	Smoky Lake Employment 1974 & 1986	234
G6.8	Unemployment Rates 1976, 1981 and 1986	235

CHAPTER 1

INTRODUCTION

Acquisition and consumption of food are basic human needs. These needs have become specialised and differentiated into several steps, each of which is vital in securing an adequate food supply. The principal steps in this procedure are production (usually on the farm), processing, marketing and distribution. Due to the need for space, agricultural activities take place in rural areas and are often the key reason for their existence. The location of agricultural-processing plants tends to be in rural areas because the raw materials, usually bulky and often perishable, necessitate a location close to agricultural production. Marketing and distribution activities are closely tied to centres of large population. Therefore, they are located in larger centres and have a greater impact on urban areas than rural areas. In this study the focus will be on food processing, one step in the supply of food. In particular, it focuses on where food processing takes place and who benefits from its location.

This study examines changes in the location of Alberta's agri-processing industry between 1975 and 1991. The main objective is to determine whether there has been a rural-to-urban shift in the location of plants and employment in agricultural processing. A second objective is to ascertain the success level achieved by policies that promote the location of agri-processing industries in rural communities. Lastly, the impact of development or lack of development of the agri-processing industry is examined through case studies of two communities.

Agri-processing location in Alberta and the impact on rural communities is important for three reasons. First, it contributes to filling a gap in the area of geographical research of agribusiness and the food-supply system. Second, it allows for an assessment to be made of a rural-development policy that initially promoted non-urban locations and later encouraged development of a value-added agri-processing sector. Finally, it helps provide an understanding of the degree to which agri-processing has become separated from the performance of rural economies, and the well-being of rural communities.

Within the discipline of geography, the sub-disciplines of "agricultural" and "industrial" geography have neglected to study agribusiness. This was recognised recently because agricultural geography has broadened its scope of enquiry and redefined itself. It was also realised that agriculture and its related industries are best understood as part of a food-supply system where the parts are closely interrelated. Changes and restructuring have also occurred in the food-supply system with consequences for urban and rural communities. There is little geographic understanding of the changes that have been taking place. Thus, this study will lessen the gap in knowledge about agribusiness and provide a better understanding of the restructuring that has taken place.

Agricultural products represent a renewable resource of a particular community. It is appropriate that local rural areas benefit from the location of processing industries through employment, income and services. The development of value-added agricultural processing is seen as an important means of strengthening rural economies and maintaining viable rural communities. Since 1975,

through a series of initiatives, government rural-development policies in Alberta have promoted locating agricultural processing plants in rural areas. Some evaluation of these policies has been done, but the focus has not been on employment or location. This study provides an opportunity to explore the spatial and employment impact of these policies. This is important since the policy of promoting agribusiness to strengthen the economic base of rural communities may conflict with the trend of a shift in the location of agri-processing from rural to urban communities.

Recently, rural communities in the western world (including Alberta), have been experiencing pressures that threaten their very survival. The major sources of these pressures are the inelasticity of demand for food, the intensification of the farmer's cost-price squeeze, and the decoupling of agriculture from the viability of rural communities. The persistent replacement of labour by capital and of local inputs and outputs by urban inputs and processing, results in agriculture having a reduced impact on rural economies. A feature of this process may also be a shift in plants and employment in agri-processing from rural to non-rural areas. The study of the locational change in plants and employment will show the magnitude of this decoupling. The locational trend also will have important implications for future public policy because agri-processing, as a vehicle to support rural communities, may come into question.

During the study period, Alberta's agri-processing sector has undergone significant growth. However, some industries have experienced restructuring and diversification, or displayed specific locational preferences. Restructuring results in

larger and fewer plants. Therefore, few communities, rural or urban, can benefit from their location. Diversification can be very successful and have positive impacts, however, only some communities have the potential to diversify. Some industries of specific sizes display locational preferences for town and rural locations, but only those locations relatively close to metropolitan areas tend to benefit. Within the diversity of the agri-processing industry, several separate trends emerge resulting in a changing pattern of plant and employment location.

My interest in this topic stems from my background and experience. Having grown up in rural Ireland, where agriculture dominated the economy and the landscape, I developed a keen awareness of the fundamental importance of agriculture and agricultural processing to rural communities. This background, combined with a number of years experience working in the agri-processing industry in Munster, Ireland, developed my awareness of the restructuring of the industry and the consequences for communities. Agri-processing firms closed or reduced the size of operations, employees lost their jobs, and many communities lost an important part of their economies. My interest was aroused as to why and how this was occurring and what, if anything, could be done to alleviate this trend.

Chapter 2 reviews relevant literature in agricultural geography, economic geography, agribusiness, agri-processing and rural development. The issues and research associated with the agricultural and food-processing industry are explored and discussed.

In Chapter 3 the data sources, methods of analysis and presentation of the data used in this study are explained. Chapter 4 presents and describes the

changes in location and employment patterns between 1975 and 1991. The reasons for location and locational change, both past and anticipated, are discussed. Chapter 5 will review public-policy initiatives for the agricultural and food-processing industry in Alberta since 1975. Jobs created by these initiatives, their location, and their rural impact are outlined.

The experience of the communities of Bow Island and Smoky Lake in developing an agri-processing sector are examined and discussed in Chapter 6. The factors which allowed for, and hindered, development of this sector are explored, as well as the impact of the development on the community. In the final chapter, the results of the analysis in the previous chapters are summarised, and conclusions are drawn. Chapter 7 also addresses the policy implications arising from the study.

CHAPTER 2

LITERATURE REVIEW

Agricultural Geography and Agribusiness

Traditionally, agricultural geography has concentrated on the production function in agriculture. It has dealt with spatial patterns of farm-based activities such as farm-size structure, farm income and agricultural marketing. Johnston (1981) describes agricultural geography as "the study of the ways in which patterns of agricultural activity vary from place to place involving both the descriptions of those patterns and the attempt to explain them" (Johnston, 1981, p. 7).

However, with the changes that have taken place, this approach is inadequate to understand the totality of the food chain. Agriculture has become industrialised and vertically integrated into the total economy. The traditional approach does not adequately deal with the backward and forward linkages that agriculture has in its production, processing and marketing. It does not take account of the complex and influential context within which food production operates. Recently, a redefined agricultural geography has been advocated and developed by Smith (1984), Wallace (1985), Bowler and Ilbery (1987), and Le Heron (1988).

Wallace (1985) encouraged the development of a geography of "agribusiness" which would include the agricultural sector as well as upstream and downstream manufacturers and distributors. Agribusiness has been defined as "the sum total of all operations involved in the manufacture and distribution of farm

supplies; production operations on the farm; storage; processing and distribution of farm commodities and items made from them" (Davis & Goldberg, 1957, p. 3).

There are, however, problems with the term "agribusiness." It is used to refer to a system or an institution. For example, large corporations involved at one or more stages of agri-food production are often called "agribusinesses." Also, the total system, as defined above uses the same term. In addition, it has ideological overtones that stem from its research focus in North America which is positively in favour of the promotion of the industry. It is united by one function "management" in the Harvard school approach[1], but the nature of the management, its effects and its objectives are not the subject of analysis (Wallace, 1985). While the term is vague and has some conceptual problems, Wallace argues that this should not be an excuse for neglecting this important field of study.

Bowler and Ilbery (1987) argue for a revised three-dimensional agricultural geography that includes an extension of the theoretical base, a broadened empirical context and the concept of the food-supply system. In the latter dimension, attention would be shifted from agricultural production to agricultural processing, distribution and marketing and the linkages with urban and industrial systems. The concept of a food-supply system sidesteps many of the definition problems of agribusiness and allows contextual issues to be considered. However, Bowler and Ilbery do not fully develop the concept.

Le Heron (1988), in a conceptual paper, discusses Frankel's (1983) breakdown of capitalist production into four macroprocesses: industrial production, food and fibre production, credit and electoral processes. Food and fibre are

specified as one category because of the "intersection of socio-economic processes with biophysical processes" (Le Heron, 1988, p. 415).

Le Heron argues this classification has several advantages. It allows many contextual factors to be considered including the role of capital, politics, historical and national factors, and class conflict. The classification also amplifies the potential importance of developments in one process impacting on other processes. The food and fibre macroprocess is a much broader approach than agribusiness or the food-supply system. It includes such non-food sectors as forestry which has similar characteristics to agricultural production.

Wallace (1985) noted industrial geography has also neglected agribusiness. Little work has been done to help understand the dynamics of this field. This is despite the fact there has been much theoretically informed work in industrial geography. The reason for the neglect of agribusiness by industrial geography is that it may be considered a mature, stable industry lacking the intellectual stimulus of high-tech research.

In the recent agricultural geographic literature, there is agreement on the need for a broader scope of study. There are differing opinions on how this field can be described and what it can include. A gap exists, therefore, in the research of the field variously defined as agribusiness, the food-supply system and food and fibre production. It is a relatively new field in geography and little work has been done on modern manufacturing, employment trends, locational analysis and multinational ownership. So, given the current state of agricultural and industrial geography, a need exists to research the dynamics of what may be described as

agribusiness or the food-supply system. To better appreciate and understand this field, various theoretical approaches will now be discussed.

Theoretical Approaches

Initially, the past orientation of agricultural geography and the geography of agribusiness will be outlined. Then, two significant recent noticeable trends will be considered. First, is the degree to which the geography of agribusiness or input and output aspects of agriculture, have been neglected both in empirical research and in theoretical developments. Second, is the shift in emphasis from the narrow focus of the production function in agriculture to a broader contextual focus.

Traditional Agricultural Geography

Agricultural geography's fundamental unit of study has been the farm and the farmer. The focus of research has been on the patterns of farming, the locations of particular types of farming and explanations of these types of patterns. There has been little theoretical development in agricultural geography. Two approaches have been employed, the empirical-inductive approach and the normative-deductive approach. In the former case, attempts are made to describe what actually exists and explanations and generalisations are made on the basis of results from studies. The latter approach is concerned with what the agricultural landscape should be like.

In agricultural geography, there have been three modes of explanation as outlined by Ilbery (1986). These are the physical environment, the economic environment and the behaviourist mode of explanation. The physical-environment approach uses physical factors to explain patterns of farm activities. The economic

-environment approach uses an understanding of the market to understand the pattern of farm production and farmland use. In Von Thunen's (1826) approach, distance from the market and transport costs primarily determined land use. This approach has evolved to include an analysis of farm-production patterns, state intervention, direct marketing and the role of co-operatives. The behaviourist approach considers "real man" rather than "economic man" considered by the previous approach. The farmer's subjective aims, motives and attitudes are taken into account and attempts are made to explain the resultant patterns. The first two approaches discussed are positivist, while the third is behaviouralist.

With this last approach, models of agricultural location are constructed and hypotheses based on the model are tested through empirical research. Two models have been developed–optimiser and satisficer. Optimiser models are based on profit maximisation and unrealistically assume farmer rationality, complete knowledge and equal ability to use this knowledge. Dissatisfaction with this approach led to satisficer models that are closer to reality and allow for farmer's motivations, aspirations and attitudes (Ilbery, 1986).

In the last decade many agricultural geographers have noted that these traditional approaches are inadequate to understand the dynamics of the agricultural sector. In particular Smith, Bowler, Le Heron and Ilbery all stress the need for a better understanding of the restructuring that is taking place and the need for a broader view of the context in which agriculture and its related activities take place. As noted earlier, a redefinition of agricultural geography is advocated

and developed to include the food-supply system or the food and fibre macro-process.

Smith (1984) in his study of Quebec agriculture, stressed vertical relationships between different levels in the food-supply system, rather than the traditional emphasis on horizontal relationships within a particular level. With the expansion of the role and power of the retailing and the processing sectors, vertical relationships have become more important. This expansion is an effort by agribusiness to reduce risk and uncertainty by controlling more stages in the food-supply system. Smith uses a vortex model (Figure 2.1) with two key processes of voice and exit to understand the food-supply system. The vortex model consists of a series of separate but interrelated layers. Farm production is the first layer, next is processing, then distribution, followed by retailing with the consumer layer on top. Hirschmann's (1970) notions of "voice" and "exit" are used to explain the options open to players at the different levels when changes at points in the model create stress. Smith argues this model which emphases a mesh of vertical linkages, better represents the dynamics of the food-supply system than the traditional horizontal relationships. A drawback of the interpretation of the model is that it is described in terms of impacts from the farmer's point of view. Changes are seen to benefit or not to benefit the farmer (Le Heron, 1988).

Political Economy

There has been a recent trend to extend the theoretical development of agricultural geography to include political economy. This is considered necessary for a number of reasons. Political economy allows the consideration of non-farm

The Vortex Model

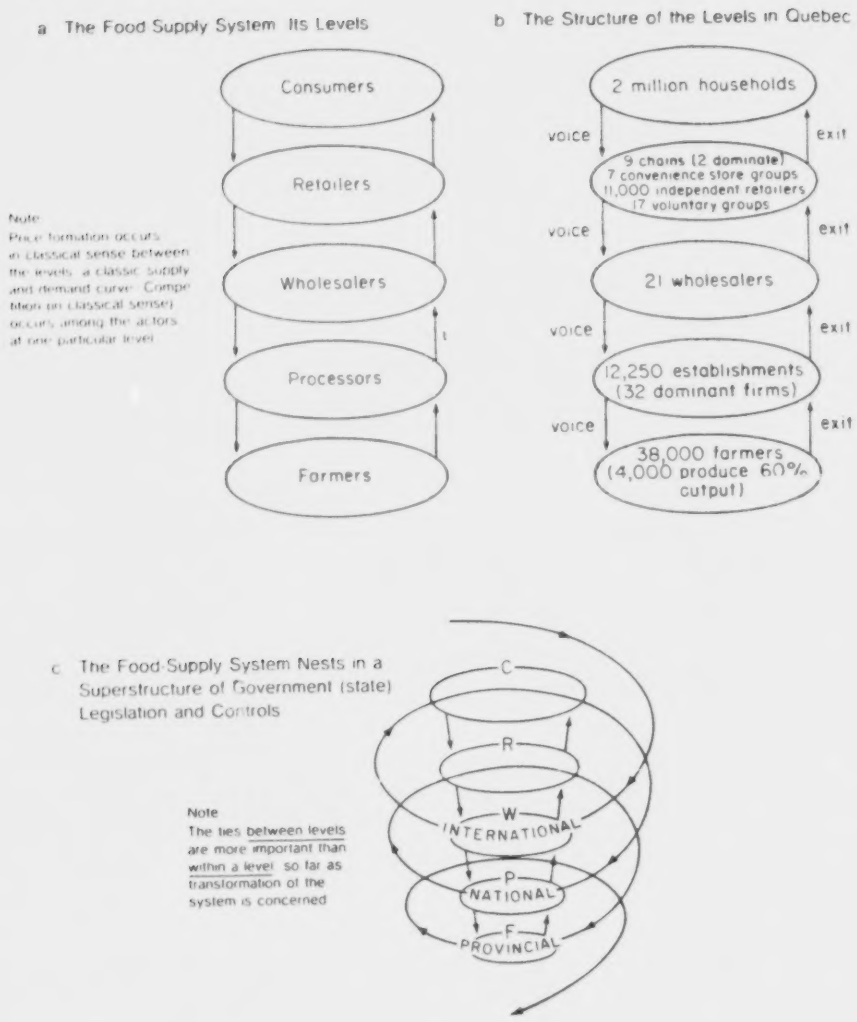


Figure 2.1

Source: Smith, D. 1984 "The 'vortex model' and the changing agricultural landscape of Quebec" *The Canadian Geographer* 28, 360.

activities that impact on the agricultural sector (Bowler & Ilbery, 1987). Political economy allows agriculture to be considered an integral part of the whole economy rather than a separate part. This is relevant especially in western agriculture where the distinction between rural and urban is becoming increasingly blurred (Le Heron, 1988). This drive for a more contextual and conceptual approach to agricultural geography has already begun and Le Heron refers to a "renaissance" in this part of the field.

The political-economy approach involves a much more contextual analysis in which broader social and economic processes are considered (Bowler & Ilbery, 1987). It is a significant shift from the traditional focus on farm production to an understanding of societal processes over greater temporal and spatial scales. However, Wallace (1985) identifies three sources of confusion in the political-economy approach to agricultural geography. First, the person who works the land is, to a certain degree, independent of the mode of production. Second, agriculture has great diversity in its business type and size and the state also plays a major role. These characteristics are not taken into account in much of the academic work in this field. Third, agribusiness has emerged as a major influence on agriculture with complex and conflicting policies where the state plays a major role.

The development of the political-economy approach was enhanced by Le Heron (1988) in *Food and Fibre Production Under Capitalism*. As mentioned earlier, he considered four macroprocesses of capitalism, one of which is food and fibre production. A number of important theoretical points emerge from this

analysis. In political-economy theory, capitalism undergoes recurring crises. The latest crises of capitalism is evident from tendencies that apply to the food and fibre sector. These include interlinking of organisations through mergers and acquisitions, reorganising physical production processes using new options of resource allocation and control, advocating reduced state intervention in commodity markets and the provision of welfare services, thereby creating new markets.

The biophysical basis of the food and fibre macroprocess results in unique features that have theoretical implications (Le Heron, 1988). Biophysical processes are unpredictable because of their reliance on seasonal and fluctuating biological processes. Also, the overall duration of the production cycle considerably exceeds the labour time needed for actual production. Consequently, the capacity for accumulating surplus value (or the rate of profit) is diminished and is lower than in industrial production. The unpredictability and labour-time characteristics inhibit the capitalisation of agriculture. However, capitalisation proceeds most rapidly where these limitations can be overcome such as in poultry and horticulture. It also can be expected that commodities that are more attractive for capitalisation will be more vertically integrated into the food-supply system. This is the case because processors and retailers seek to reduce risks by vertical relationships. Vertical relationships with farming, which is more easily controllable and more profitable, therefore, will be more attractive. Capitalisation is inhibited in commodities where the gap between production time and labour time cannot be narrowed. Commodities such as livestock and crops are, therefore, less attractive for investment by agribusiness in the production stage.

Another important theoretical point concerns the origins of agribusiness and contract farming. The origins of agribusiness stem from two sources – industrial capital or farmers pooling capital. However, regardless of the origins, agribusiness has been very important in extending the production sequence mainly through processing and packaging. As a consequence the production process remains very important to agribusiness. Contract farming has developed out of agribusiness because it gives greater control of supply and production to the agribusiness corporation. The important variables of quality, price and delivery time are planned, and increased productivity is available to the processor.

In rural research, the broad concepts of Fordism[2] and post-Fordism[3] in the context of the regulationist[4] literature have begun to be used. Page and Walker (1991) emphasise the role of the agricultural economy in the rise of Fordism in the American Midwest in the nineteenth century and Marsden and Murdoch (1990) stress the importance of rural places in post-Fordist economies. Cloke and Goodwin (1992) welcome the regulationist approach, with the key idea that "expanded social reproduction of capitalism is never guaranteed, but has to be continuously secured through a range of social norms, mechanisms and institutions" (p. 322). This approach allows a linking of changes in economy to those in society, culture and politics. Therefore, attention is focused on the complex inter-relationships that permit a dynamic and unstable capitalist system to function.

Cloke and Goodwin (1992), while embracing the political-economy approach, urge caution in the application of concepts on a grand scale to rural areas. Rather, they argue for the application of intermediate concepts that

emphasise the diversity of rural places, and allow broader social, economic and political issues to be considered. While welcoming the application of regulationist concepts, Cloke and Goodwin warn of the danger of not taking into account the various spatial scales at which processes of uneven development operate. This danger results from the use of the nation state as the scale of analysis in regulationist literature, when economic restructuring and social-recomposition processes also operate at local, regional and international levels. Cloke and Goodwin argue for the use of the more middle-ground concepts of mode of regulation[5], societalization[6] and structured coherence[7]. Mode of regulation and societalization are processes that allow the contradictions and tensions of capitalism to be overcome, hence, its social reproduction can continue. Particular modes of regulation and strategies of societalization will result in a partial, or temporary, coherence at a particular place and time. Thus, depending on the social, economic, political and cultural regulatory mechanisms operating, rural regions undergo diverse and socially contested changes. In essence, the approach advocated by Cloke and Goodwin allows the importance of locality and place to emerge in a political-economy approach.

Role of the State

A further important theoretical point is the role of the state. The state has been a powerful influence on agriculture and agribusiness. In the developed world, this influence is declining as the state retreats and private investment becomes more prominent. The relative influence of the farm lobby is a key factor in determining agricultural policy, therefore, policy will vary spatially between

states. Bowler (1988) notes that in North America the agricultural interest has lost out to overriding economic imperatives and cites the Canadian example of the abandonment of the Crow's Nest Pass freight-rate subsidy. In this case, the desire to limit the Federal budget deficit and the lack of western representation in the Government, overcame the agricultural interest. However, Wallace (1985) argues that despite the reduced political influence of farmers, they have been disproportionately successful in promoting their interests at the expense of others. In contrast to North America, Bowler (1988) observes that in western Europe the powerful agricultural lobby in the European Community continues to be a major influence in the absence of a countervailing force.

The state has played a major role by giving credit, providing capital, regulating the food-supply system and supporting producers through income and price support policies. This role keeps agriculture attractive for investment (Le Heron, 1988). However, these policies have resulted in surplus production of agricultural products, adverse effects on world trade, distorted prices for domestic agricultural products, significant costs for protectionist measures and low-income problems for farmers (Bowler, 1979). The aid given to agriculture has been capitalised in farmland values (Wallace, 1985), and in cash values for quotas (Smith, 1984). Further, the industries that service agriculture have grown and prospered as a result of sharing the advantages of agricultural protection (Body, 1982). Budgetary constraints, surplus production and international deregulation are forcing the state to retreat from its previous role by reducing support and deregulating the markets. As governments reduce their support of agriculture,

adverse consequences also can be expected for agribusiness as it restructures to cope with a less protected environment. The consequences may be evident in fewer and larger plants.

In Canada, the Government intervenes in agriculture through supply management. Marketing boards determine output and prices for the eggs, poultry, milk and hog sectors. Output is controlled through a quota system that assumes a cash value, therefore the quota raises farming costs and is a barrier to entry. The supply-management system also allows greater corporate penetration into agriculture. Agribusiness corporations can indirectly lease quotas using "front men" and then release the quotas to producers on condition they buy the output and/or the input (Smith, 1984).

In an analysis of the Canadian dairy industry, Chiotti (1992) considers that supply management has left the industry vulnerable to restructuring with the opening of continental markets. Under supply management, the supply of milk is controlled and cheap imports are restricted. Chiotti argues the result is an internally viable industry but by North American standards the firms are smaller, less efficient and higher cost based. Rather than allow comparative advantage to develop, supply management has preserved areas of disadvantage. Therefore, there is potential for radical restructuring as the firms are very vulnerable to competition from large U.S. processors. The recent GATT agreement that deregulates supply management in world trade will exacerbate this vulnerability. In contrast, the beef-packing industry that operates in a freer, continental market has already experienced considerable restructuring (Chiotti, 1992; Novek, 1989).

From an industry perspective, supply management has resulted in a profitable dairy industry in Alberta. The profit has allowed investment in new technology and research and development, resulting in cost benefits being passed on to the consumer (Child, 1984).

In Alberta, the Federal and Provincial Governments have combined under Nutritive Processing Agreements[8] to assist development of the agri-processing sector and promote rural development. The assistance has primarily been through capital assistance to firms favourably biased toward rural locations. Child (1984) argues that as a result of these policies, there has been a generation of excess capacities produced in the meat-packing and rapeseed industries in Alberta. The result is reduced profitability, reduced efficiency, less tax paid, no reinvestment and an uncertain future. Also, investments were made in plants that failed very soon after start up. Government assistance replacing the judgement of the market, it is argued, was the cause of these problems. The government, however, claimed that the policies have supported rural economies and development of the agri-processing sector and have been instrumental in creating 1,580 jobs from 1975 to 1983 (McEwan, 1984).

In the context of the political-economy approach, the state not only keeps the agriculture sector attractive for investment, but also plays a more subtle, facilitating role. Using the concept of the mode of regulation, the state has a very important role in the social reproduction of capitalism. The state is the key in building a system of regulatory mechanisms and procedures through which the contradictions and tensions of capitalism are overcome. The state also intervenes

in rural areas at several levels including local, regional, national and international. The uneven and diverse impacts of state intervention can radically alter rural places (Cloke & Goodwin, 1992).

Location Theory

Location theory, which seeks to explain and predict the location of economic activity, provides a valuable perspective on agribusiness location. Three perspectives have developed in location theory: classical-location theory that derives from neo-classical economics, the behaviouralist approach that focuses on the decision-making process, and the structuralist perspective. In this discussion, three classical-theory models will be stressed as they emphasise important points relating to raw materials, economies of scale, access to the market and product-profit cycle.

First, the least-cost model of location emphasises the role of transport costs in determining the optimal location for a plant or firm. The optimal location will be the least cost location based on the relative costs of transporting raw materials to the processing plant and finished product to markets. Smith (1966) developed Weber's (1929) idea on optimal location to the more realistic notion of margins of profitability on a space-cost curve within which location would be appropriate. He also extended Weber's analysis to include all types of costs and acknowledged the distinction between basic and locational costs. Classical-location theory's main implication for agri-processing location relates to the characteristics of the agri-processing of raw materials.

The raw materials used in agri-processing are often bulky and perishable and tend to lose weight and bulk during processing. In accordance with classical-location theory, therefore, location will be most profitable near the raw material site. Watts's (1970) analysis of the sugar beet industry in England and Wales typically conforms to this location pattern. Economies of scale can be expected to distort this expected pattern of location. Larger plants require more specialised and a greater quantity of labour. Locations near the raw materials, that is, rural locations do not meet these requirements. Also, agglomeration economies mitigate against rural locations. Economies of scale would be expected, therefore, to modify a rural location pattern to an urban location in an area where the required raw materials are available.

Second, the demand-maximization model of location presumes that firms locate based on the site that provides access to the largest possible market (Smith, 1971). This model is relevant for processors selling to many dispersed retailers – dairies, for example. The desire to be close to the market, may outweigh the benefit of accessibility to the raw material. In the case of liquid milk, the raw material does not shrink in processing, therefore, there is a greater advantage in locating near the market to maximise demand.

The third model of industrial location that is relevant to agri-processing is the product-profit cycle model. A product life cycle model was originally developed by Vernon (1966); the basis of this model was that industrial products evolve through a sequence of development stages. Each of the three stages of youth, maturity, and old age are linked to a technology that finds geographic expression

expression in specific location characteristics. A product-profit cycle model was developed, however, by Markusen (1985) applied to industries as a whole and their regional agglomerations. This latter model is more relevant to this study because it refers to the development of whole industries rather than just individual products. It suggests that firms in any industry go through four successive stages of development ; innovative, market penetration, market saturation and rationalisation stages.

During the innovative stage of an industry, the emphasis is on design and commercialisation of a new product. In this stage, there is a concentration of the industry in relatively limited areas. During the market penetration stage, output increases and then stabilises as the industry moves to mass production and market penetration. The industry tends to decentralise from its innovating centre toward nearby pheripheral sites in the same region to take advantage of lower cost locations. In the market saturation stage, firms vie for market share through competition or through oligopolistic practices. Decentralisation of production accelerates, while activities concerned with market and strategic management remain at the centre. In the final rationalisation stage, intense competition reduces prices and profits. Firms respond by diversifying product lines and by reducing capacity and costs. The level of employment declines as production is reconcentrated in a few locations. The product-profit cycle is well grounded empirically and has widespread applicability to many industries, however, there is little underlying explanation of the sequence, duration or geography of the stages (Thompson 1989).

Some of the industries included in agri-processing are in the latter stages of the product-profit cycle. Industries such as dairy, meat, feeds and bakeries are long established and while new products and new technologies emerge, they still display the rationalisation feature of later stage industries. Locationally and structurally, these industries are increasingly characterised by few large-scale plants in rural or urban areas. On the other hand, industries such as Specialty foods and special crops display features of the earlier stages of the product-profit cycle. In the former case, there are many small, urban processors; while in the latter case, the plants are relatively small scale and locally concentrated in rural areas.

Rural Sociology

The discipline of rural sociology is closely related to agricultural geography. Theoretical and empirical trends in rural sociology are similar to those in agricultural geography. Until recently, the focus has been on rural structures and institutions. Theoretical developments, including a more critical and contextual analysis, have occurred. The development of a structuralist perspective of political economy has preceded that in agricultural geography (Newby & Buttel, 1980). As in agricultural geography, agribusiness has not received much attention, despite its increasing dominance of food production through vertical and horizontal integration.

In a review of rural sociology literature on agribusiness, Martinson and Campbell (1980) discuss a number of perspectives that have been brought to bear on this field. These include dependency, ownership and control, financial control,

industrial organisation and environmental control perspectives. The dependency perspective views agribusiness as exploiting farmers by altering their opportunities for profit and profiting itself from this process. Spatially, large agribusiness firms located in the urban core use power to exploit the rural-agricultural hinterland. In ownership and control, the two factors may be considered separate, ownership being diffused by stock investment, and control being in the hands of professional managers. In co-operatives, control by members should exist but research shows management control dominates. The financial control perspective views agribusiness corporations as dependent for capital on banks, therefore, banks have effective control. Environmental control involves the organisation being inter-related with its environment, thus there is a need for mutual interdependencies for the organisation to survive and prosper.

Industrial organisation, essentially an economic perspective, assumes that the structure of an industry determines conduct and, therefore, performance. The more competitive the structure of the industry, the more efficient it will be. The perspective does not account for vertical relationships or for multi-product and market firms. Inter-firm behaviour in large conglomerates is also influenced by mutual forbearance and reciprocity. Mutual forbearance is the tendency for firms that meet in many markets to be less aggressive towards each other because of the fear of competition in other markets. Reciprocity involves firms trading with each other on the basis of reciprocal trade. These are important points in agribusiness as many sectors are dominated by a few large firms. Farmers try to countervail this monopolistic or oligopolistic situation by political power and

co-operative purchasing and selling. Mutual forbearance is particularly relevant to the agri-processing industry as a few large corporations dominate some sectors and have multiple ranges of products competing with each other.

It seems, therefore that in rural sociology, there has been a similar neglect of agribusiness as a field of study as in agricultural geography. Theoretical development has also been slow. Martinson and Campbell (1980) conclude much work needs to be done to enlarge the understanding of agribusiness within the various perspectives outlined.

In brief, there has been little theoretical development in agricultural geography until recently. The new developments indicate there is a need for research, particularly in agribusiness. Also indicated is that developments and structural changes may be best understood by considering agribusiness as a part of the food-supply system in which different parts of the system have close inter-relationships and interdependencies. The dynamics of the food-supply system in western economies are best understood by understanding the context in which it operates politically, socially and economically.

In the next section the agri-processing industry, the focus of this study, will be examined in more detail. The influences on processing plant locations will be discussed through a review of relevant studies and the use of inferences from theoretical points.

Agri-Processing Location

A significant segment of agribusiness is the agricultural-processing industry. It is comprised of sectors that process agricultural products into a variety of food

and other products. Processing of agricultural outputs makes up the largest proportion of plants in this industry. Chief amongst these outputs are meat, milk, grain, vegetables, fruits, poultry and eggs. Some of these outputs are processed to become inputs into agriculture. In particular, some grain and other crops are processed to become animal feed, that is an input for other agricultural activities. Thus, the agri-processing industry is a diverse sector consisting of both input and output aspects of agriculture.

The literature indicates that the location characteristics of agricultural processing vary depending on the type of processing, the ownership and size characteristics, and the degree of vertical integration. It is difficult to generalise about the industry due to the variety of products processed and their characteristics. However, agricultural processing generally utilises large amounts of bulky, and often perishable, low value raw materials. A large proportion of costs are incurred in acquiring and processing these raw materials, therefore, according to classical-location theory, the processing industry will be "powerfully drawn" to the resource sites (Lloyd & Dicken, 1977). In the past, agri-processing activities such as milling, sugar beet processing, animal feed manufacture and grain processing have located in rural areas near the raw material source.

Recent trends identified in the U.S. and Canadian meat-packing industry confirm the strong influence of raw materials as a locational influence. In the past, meat-packing plants had tended to locate in urban areas adjacent to stock-yards and rail terminals. However, since the 1980s, meat-packing plants have decentralised to smaller rural locations (Novek, 1989; Broadway & Ward, 1990).

Strong competition has emphasised cost advantages and new, large scale, highly-efficient plants can benefit from rural locations. The decentralisation trend also can be understood as a relatively mature industry undergoing rationalisation with a few, large efficient locations emerging. From the dependency perspective, this can be interpreted as a trend for large urban-based agri-processing corporations exploiting the rural hinterland (Martinson & Campbell, 1980). In the Canadian meat packing industry, as well as decentralisation, there has been a westward regional shift of meat-packing plant locations from Ontario to Alberta (Chiotti, 1992).

Alberta rural locations have advantages of proximity to feedlots, lower labour costs and low grain prices. The initial concentration of feedlots in southern Alberta, was a major influence in bringing about the subsequent concentration of meat-packing plants (Ross, Susko, Kaliel, MacDonald-Date & Smith, 1990). However, the restructuring of the Canadian meat-packing industry has resulted in fewer larger plants, less employment and lower relative wage levels (Novek, 1989; Chiotti, 1992). Therefore, relatively few communities, either urban or rural can benefit from this locational trend.

Burns (1983) simply classified firms in the food industry (an industry that chiefly involves agricultural outputs) into two types of sectors. Firms are either agriculturally-oriented or consumer-oriented food processors. The former are concerned with getting reliable supplies of produce, processing them at minimum cost, often relying on by-products for profit. The latter produces identifiable, differentiated, packaged-food products for a competitive consumer market. This

classification is compatible to some degree with trends noted by Diry (1979) in the French agri-food system. The private sector dominates high value-added, high profit production of the agri-food system whereas, basic processing operations are dominated by co-operatives. Co-operatives have a long history of involvement in agricultural and food processing but, they complement rather than compete with the private sector. The latter part of the system ties up large amounts of fixed capital in processing and has relatively low value-added characteristics such as slaughtering and fluid milk collection.

This classification may be too simplistic because many large corporations and co-operatives control food supply from the farm gate to the supermarket shelf. However, the classification implies different location characteristics for both segments. Agriculturally-oriented processing would be expected to locate at or near the raw material source, that is a rural location. Consumer-oriented processing that is not tied to raw materials may be expected to locate close to urban markets.

The agribusiness sector has been characterised in recent times by larger and fewer firms that are more vertically and horizontally integrated (Vogeler, 1981; Wallace, 1985). This results in more concentrated control of the food-supply chain by private sector companies so a few large corporations come to dominate food processing (Allen, 1983). In contrast to this general trend, Novek (1989) notes a trend towards deconcentration in the Canadian meat-packing industry. The relatively low costs to enter, increased specialisation and vertical disintegration, have contributed to this trend for meat packing.

Concentration of ownership and vertical integration complicate the interpretation of the dualistic model outlined by Burns (1983) and Diry (1979). Concentration of ownership, coupled with restructuring, results in larger and fewer plants. Larger plants are more sensitive to having an adequate labour market and services available. Larger plants in the agri-processing sector are generally expected therefore, to favour metropolitan locations (Wallace, 1992).

Vertical integration, such as contract relationships between farmer and processor, also has locational consequences. The locational implications of these relationships would be a clustering of related activities. For example, poultry producers, poultry-feed manufacturers and poultry processors would locate in close proximity. Smith (1984) noted that hog, egg and poultry industries in Quebec concentrate in areas where farmers have low incomes and few job opportunities. These farmers with fewer options are more likely to accept contracts and conform to specialized operating requirements. Smith (1984) clearly expresses the locational consequences of concentration of ownership and vertical integration in his study of Quebec:

> The growth of large scale units and closer links among different components of the agriculture food system have led to greater locational concentration. Few new units have been created, but smaller and mainly peripheral ones have disappeared and others mostly metropolitan have expanded. (Smith, 1984, p. 363)

A complex picture of locational characteristics thus emerges from the literature. The pull of raw materials seems powerful in terms of location, but economies of scale and vertical integration distort this trend. Vertical integration promotes regional specialisation while economies of scale can favour urban or

rural locations. The changing location pattern in Alberta may reflect this in fewer larger plants locating in larger population centres. Also, regional specialisation should be evident with interdependent plants locating close together. Specialisation also may be reflected in plants locating in a less dispersed manner. In the next section, the role of agri-processing in rural development will be discussed, and the experiences of western Canada in this respect will be examined.

Agri-Processing and Rural Development

Initially, in this section, the changing characteristics of rural space will be discussed, then its variations and how this affects rural development will be addressed. The problems that are impacting on rural communities in western countries and the responses to those problems will be reviewed. Initiatives undertaken in Alberta to promote rural development and evaluations of these initiatives also will be addressed.

Until recently, rural and urban were easily defined socially, as rural was largely agricultural and traditional, while urban was industrialised and "modern." Since the 1960s, rural has undergone profound changes. Rural has become industrialised and more integrated into total society. All areas are now part of a larger economic system that is subject to spatial partitioning (Walford, 1992). There has been a sharp decline in agricultural employment as productivity-oriented agriculture has tended to decouple agriculture from rural prosperity. Expanding patterns of counterurbanisation and the urban rural shift in secondary and tertiary sectors, all challenge the notion of rural as detached, traditional or peripheral. For many people, rural space is now principally regarded as an

amenity and a location of residence rather than a place of primary production (Marsden, Lowe & Whatmore, 1990).

However, rural space is not uniform, rather it varies especially regarding proximity to metropolitan areas and the type of primary rural activity. These variations reflect the differences in rural space depending on access to markets, access to labour force and economic base (Bryant, 1992). The changes that have taken place have had varying impacts on Canadian rural space. Rural areas in the urban field (i.e., within 150 to 200 km of major metro or urban areas) have undergone complex changes. In areas close to the metropolitan centres, agricultural production has continued to develop, but major community disruption has not accompanied the reduction of agricultural labour. Non-farm population, employed locally or in the urban areas, has counterbalanced and stabilised the reduction of agricultural employment, enabling retailing and services to be maintained or to grow. The more diversified farm structure (which now includes part-time and hobby farming), has also helped stabilise these communities. However, in the outer parts of the urban field, the industrialisation of agriculture has led to decline in population and employment and there has been little alternative development to prevent stagnation or decline of the community base. The rural peripheries that lie beyond the urban field are dependent on narrowly-based rural economies or single industries. Without the stabilising forces of diversified employment that the rural areas close to metropolitan cities enjoy, these communities are vulnerable to global market variations (Bryant, 1992).

In the post-industrial society, several forces of change have emerged; these include the emergence of new needs and technology (Bryant, 1988), corporate concentration, changing consumer demand and the emergence of continental markets (Wallace, 1992). These forces have influenced the restructuring of rural systems as well as society and the economy in general (Bowler, Bryant & Nellis, 1992). Freshwater, Ehrensaft and Apedaile (1991) identify severe problems that rural and single industry regions experience as a result. These include the mis-match of people and jobs, mismatch of skills and jobs, high cost of services resulting from outmigration, uneven impact of macroeconomic forces, urban bias of social policy, conflict about the use of the environment and disparity between rural industry and international industry. Resource-dependent rural communities also face the problem that resources, and decisions about the resources, are controlled from outside and this can lead to apathy in the community (Krannich & Luloff, 1991).

Impacts of such forces lead to continued decline in rural employment as the tendency for large agri-food plants to locate in metropolitan areas continues. However, Wallace considers that agri-processing will continue to be important for rural areas. Troughton (1992) views the restructuring of rural and agricultural systems as a decoupling, which has negative impacts on rural communities. Agriculture has become part of the agri-business chain and is being separated from rural society. Rural communities are negatively impacted by the decline in the number of farms and farm families. Local employment declines as the demand for farm labour is reduced and as farm supply and processing facilities are

concentrated. The consequences for rural communities are serious because they may be losing their primary reason for existence.

In the above context, rural communities in Alberta which are largely agriculturally dependent, are experiencing economic pressures as a result of the farmers' cost-price squeeze, the increasing integration of agriculture into urban-industrial economies and the demand for environmentally-sensitive practices. Socially, there is an expectation for services, facilities and living standards similar to those of urban society. Confronted with these problems, rural communities need to develop means of strengthening their economic base and social infrastructure in order to remain viable and attractive places for people to live. Rural communities, therefore, must diversify (Rounds, 1992; Troughton, 1992), specialise, export and adapt to change (Freshwater et al., 1991) to survive and develop.

Surpluses of traditional crops, changing patterns of consumption and the emergence of the entrepreneurial state are driving the diversification trend (Napton, 1992). Diversification contributes to more stability in agriculture and to a more sustainable agriculture (Bowler, Bryant & Nellis, 1992). Diversified agriculture increases the potential for development of rural based agri-processing industries. As will be evident later in the case of Bow Island, agricultural diversification can benefit rural communities through location of the processing of the diversified output. However, diversification is not an option for all rural communities because of resource and entrepreneurial limitations. Diversification is most likely to be successful for small pockets of farmers who develop new, and maybe,

profitable enterprises (Napton, 1992). The type of rural space also affects the potential for diversification. Rural communities located in the urban fringe have an advantage in diversifying in products that can be sold directly to the consumers (Deslauriers, Bryant & Marois, 1992). Also, Tyrchniewicz (1991) argues that diversification through value-added processing of agricultural products often results in little employment increase and is at the expense of other communities. It also can waste public funds. Stabler and Molder (1992) found that export orientation to be closely related to growth and success, but found that little government interference was wanted in manufacturing. In their study of Saskatchewan manufacturing, only 25% of firms surveyed had received assistance in start-up costs.

Napton (1992) describes two types of agricultural diversification that have emerged in the United States. First, entrepreneurial diversification, which is the production of alternative crops not traditional to the area. This type of diversification focuses on small, clearly-defined markets. It involves import substitution, value-added processing or local job growth and is most likely to affect land use near cities. There are risks attached to this diversification – returns can be low, small specialist markets can quickly become saturated, and market conditions change rapidly and unexpectedly. The second type is industrial-commodity diversification. In the U.S., this is driven by agribusiness and Land Grant efforts to develop new and traditional crops to substitute for fuels and synthetics. While this is still being developed, it is more likely to be large scale in scope and affect regional and national land-use patterns.

The development of agri-processing industry is recognised as a potential source of development for rural communities in Canada (Agriculture Canada, 1989). Due to the close relationship between agri-processing, agriculture and the viability of rural communities, the encouragement of the development of value-added agri-processing has often been the focus of government policy. Policy measures for agri-processing in Canada tend to be encouraging rather than inhibiting or redistributive (McInerney, 1983). It should be noted that the Canadian Federal Government and the Alberta Provincial Government supported development of the sector through the Nutritive Processing Agreements (N.P.A.) from 1975 to 1983, and via the Agricultural Food Processing and Marketing Agreement (A.F.P.M.A.) from 1984 to the present.

Value-added agri-processing is regarded as most appropriate as more employment and wealth are created for the rural community. The Provincial Government of Alberta envisages value-added agricultural processing as directly related to rural community revitalisation (Alberta Municipal Affairs, 1990). It can result in new jobs and increased population with positive consequences for the local community. Rural communities benefit through direct and indirect employment, more diverse sources of income and development of various support services and the more value that can be added to the agricultural produce at a local level, the greater these benefits can be received locally.

The lack of rural jobs is the most severe contemporary problem for rural communities (Hodge & Whitby, 1981; Lapping & Szedlmayer, 1991). Agri-processing seems an option to create jobs as it is less concentrated than other

manufacturing industry (Doeksen & Schriener, 1972). In addition, rural communities have the available raw materials for processing. Further, rural locations are lower cost locations (Chiotti, 1992) and have lower land, labour and maintenance costs, as well as lower taxes (USARS, 1978). A recent study of the rural-manufacturing industry (which included agri-processing) in Saskatchewan, confirmed the advantages of a rural-labour force. The availability of skilled, co-operative and low-cost labour emerged as the most important locational factor (Stabler & Molder, 1992). Also, the frictional effect of distance via transport costs, is not such a key factor if there is ready access to a highway and a high value to weight ratio for the product. However, Hodge and Whitby (1981) see limits to the agri- processing role in rural development. Capital investment is high, processing is usually seasonal, and the expected spin-off jobs in raw material supply are not realised.

Some evaluation has been carried out on programmes in Canada that promoted rural development using the food or agri-processing industries. A programme operated by Department of Regional Economic Expansion (DREE) between 1969 and 1977 in western Canada to alleviate economic disparity and promote rural development was severely criticised by a British Columbia Select Standing Committee on Agriculture. The authors claimed the programme fostered severe overcapacity in the french fries and beef industry resulting in the displacement of plants to other western provinces. DREE, it claimed, failed to address the overcapacity problem. The British Columbia industries under utilised the funds

available compared with other western provinces leading to this dislocation (Select Standing Committee on Agriculture, 1978).

Harvest Foods (1992) evaluated the macroimpacts of economic development initiatives on the agricultural processing industries in western Canada with particular emphasis on Alberta. The report covered the period 1975 to 1990. It indicates there was substantial investment and growth in Alberta's agri-processing industry. However, the growth is primarily attributed to population growth and to the supply management of the dairy and poultry sectors. In terms of location, rural and urban benefited equally when the bakery sector is excluded. In Alberta, the programmes were found to have provided supportive assistance but were "creating relatively few net new job and manufacturing investment" (Harvest Foods, 1992, p. 50). Nevertheless, there were significant positive effects of the Alberta programmes. Human resource skills in economic development (in the public sector) were enhanced, the variety of agricultural products was increased and a positive image of agri-processing in Alberta was created.

Rural communities are facing many difficult problems; the governments of Canada and Alberta believe the development of value-added agri-processing to be one part of the solution. Programmes have been implemented to encourage this development. Evaluations of the programmes indicate limited success in creating jobs in rural or urban locations. However, the evaluations have not examined specific impacts on individual communities. In Chapter 6, the study of two rural communities should allow a more specific understanding of local impacts to be gained.

Conclusion

In summary, there is general agreement in the literature on the need for a broader and more contextual approach to the study of agribusiness and the food-supply system. This is reflected in the increasing amount of work being done with a political-economy perspective. Developments can be best understood in the context of the larger social, economic and political system rather than through the study of isolated cases. The literature indicates that agri-processing location is strongly influenced by raw materials, but this is distorted by increasing economies of scale, vertical integration and rationalisation. Rural communities are currently experiencing many problems and agri-processing is a possible solution to creating employment in rural areas. However, rural areas close to metropolitan areas and those with a potential for agricultural diversification are more likely to benefit from agri-processing location.

Finally, how does the literature specifically address the research questions of this study? The first research question is to ascertain if the location of plants and employment in Alberta's agri-processing sector has shifted from rural to urban? The literature indicates that the tendencies of economies of scale and rationalisation lead to larger and fewer plants, particularly in the more mature traditional agri-processing industries. With some exceptions, these plants will tend to locate in large metropolitan areas. The literature would therefore, indicate that there is a bias towards metropolitan locations. However, rural locations have lower labour, land and maintenance costs. If these advantages are coupled with access to markets, then rural locations can be more attractive than urban loca-

tions. Studies also indicate that during the study period 1975 to 1991, there has been overall growth in agri-processing in Alberta and both urban and rural areas have benefited from this growth.

The second research question is to determine the employment impact of Government policies that assisted the agri-processing industry in Alberta between 1975 and 1991. The literature has little to contribute to this topic. Evaluations indicate that such policies can have negative impacts such as generating excess capacity in a particular industry. Positive impact of these policies on rural communities through job creation are also suggested, but there is no elaboration on the type or the location of the jobs created. There is also, no elaboration on the specific impacts on rural communities. A study of rural manufacturing in Saskatchewan indicates government intervention is not welcomed by company management. It is hoped that this study can send some light on the impact of such public policy and thus contribute to the literature of agri-processing.

Notes

1. Agribusiness research in the Harvard Business School is dedicated to "bringing the resources and capabilities of agribusiness firms to bear on economic development" (Wallace, 1985).
2. Fordism is the mode of production used by manufacturers based on inflexible mass production and assembly.
3. Post-Fordism is regarded as the mode of production that succeeds Fordism, it is a flexible mode which can quickly respond to market signals. Smaller, skilled labour forces are employed, they are often non-unionised and the companies are small to medium-sized.
4. Regulation theory has emerged from Marxist historical materialism and is "concerned with the changing forms and mechanisms (institutions, networks, procedures, modes of calculation and norms) in and through which the expanded reproduction of capital as a social relation is secured" (Jessop, 1990, p. 154).
5. Mode of regulation is concerned with the ways in which contradictions and tensions of capitalism are overcome. The mode of regulation varies from individual behaviour to state regulation and incorporates collective norms, rules, laws, habits and customs (Cloke & Goodwin, 1992).
6. The concept of societalization has emerged from the West German school of regulation theory. Societalization refers to the process of regulation at a societal level that tends to integrate diverse social structures and bring together competing social forces (Cloke & Goodwin, 1992).

7. Structured coherences, an idea of Harvey (1985), can be regarded as the consequence of particular modes of regulation and strategies of societalization pursued by particular groups in an area. The coherence may be partial or temporary and can take a spatial form (Cloke & Goodwin, 1992).

8. The Nutritive Processing Agreements are discussed in more detail in Chapter 5.

CHAPTER 3

METHODOLOGY

Methodological Approach

The methodology used in this study is derived from the need to answer the following two research questions from the available data. A combination of different sources and analysis is used for two reasons. First, the research questions cannot be answered from one source and method. The documentary sources did not provide the required data, so access to additional government data was attempted, however, it too, was unavailable. Therefore, a survey questionnaire was used to obtain data on employment created by the programmes from the firms involved. In trying to understand the process and impact of agri-processing industry developments at community level, field observation and interviews were most appropriate. They also complemented the other data sources. Second, the different sources used, help to provide a broader perspective on the topic. The use of documentary sources, self-administered questionnaire and field interviews together with statistical and interpretative analysis allows a more complete understanding of the topic. In particular, questionnaires and interviews bring the knowledge and experience of many others to bear on this subject.

Research Questions

The first research question is to determine if, and to what extent, processing plants and employment in Alberta's agri-processing have shifted[1] from rural to urban locations between 1975 and 1991? To answer this question, the location of plants and employment in the agri-processing industry is established for 1975 and

1991 and two intermediate years – 1979 and 1987. By comparing the locational and employment characteristics of the industry over this period, a change in the pattern of plant and employment location can be established. This pattern of employment and plant location can be interpreted using the locational data, and reasons for individual plant locations and relocations that will be available from questionnaire data.

The second research question is to examine the employment impact of public-policy programmes on the agri-processing industry between 1975 and 1991. This was done through analysis of province-wide employment impacts and analysis of two specific communities' experience with development of their agri-processing industry. In the province-wide analysis, the jobs created by the government programmes, their location and their impact was investigated. Through two case studies the factors that facilitated and hindered development in the agri-processing industry, and the impact of development or lack of development, were examined. Documentary data, as well as the questionnaire survey, established the jobs created by public-policy programmes in this period, as well as their location and impact. The factors that affected development and the impact on the two specific communities were examined through fieldwork observation and interviews, as well as documentary sources.

Data Sources and Collection

Documentary Sources

Documentary sources were the prime sources used to answer the first research question. Three documentary sources were used, agri-processing industry

directories, Statistics Canada data on manufacturing industry plants and the Alberta Department of Municipal Affairs official population lists for settlements in Alberta.

The industry directories, published annually in recent times[2], catalogue all the agri-processing plants within a year by product type and by location and contain information on the plant's location and employment size. In addition, Statistics Canada itemises the manufacturing establishments of the food and agri-processing industry with details of employment size. The Department of Municipal Affairs Population lists details the settlement classification and population for all settlements in Alberta annually.

The 1975 and 1991 agri-processing industry directories were the basis for plant locations and employment size for the beginning and end of the period under study. Since the 1975 directory data on employment size was not complete for all plants, Statistics Canada data was used to supplement the directory data. However, the combination of these two sources was not sufficient to provide complete data[3] on employment size for all the 1975 plants. Nevertheless, this increased the number of plants with available 1975 employment data to 68% of the total. The 1979 and 1987 directories provide interim location patterns during the study period. Rather than use 1983 as an interim year, 1979 and 1987 were used because there was a break in publication of the directories between 1979 and 1985.

The Municipal Affairs Official Population Lists for 1975, 1979, 1986 and 1991 were used as the source for settlement classification and population size

data. These years were chosen to correspond to the relevant directory year. The population lists were based on the most recent Federal or Municipal census data available. Therefore, the data for a specific year contains a combination of current data as well as data that may date back to the most recent Federal census.

Questionnaire

The questionnaire was designed to acquire the data necessary to test the two major research questions. In the case of the first research question, the questionnaire supplemented the documentary data by seeking information on reasons for current plant location, individual plant relocations and the reasons for such relocations. For the second research question, the questionnaire was the principal source for data on employment impacts of public-policy programmes. The questionnaire also complemented the fieldwork by seeking information on processing plants' impact on the local economy. Following the initial design of the questionnaire, it was tested on four processing plants of different sizes and product type in the Edmonton area. Some weaknesses were identified from this pilot study and necessary changes were made. To try to maximise the responses, the number of questions was minimised to those required to answer the research questions. Questions on matters confidential to the company were avoided. The final version of the questionnaire (Appendix A) was divided into three sections. The first section solicited information on current employment and location, as well as recent changes. The second section sought information on participation and impacts of government-assisted projects. The final section addressed local impacts and respondents' views on future trends. All processing plants listed in the

1991 Alberta Agri-Processing Directory except the beverage industry, were included in the survey. This was considered necessary because using a sample of the plants or selecting only some sectors of the industry may have resulted in an insufficient number of responses given the normal response rates to mail surveys. This would have undermined the validity of the study.

The questionnaire was mailed to all the plants listed in the Agri-Processing Industry Directory 1991 (except the beverage industry) on November 10, 1992. Plants no longer in operation were not included in the survey population. Staff of Alberta Agriculture assisted in identifying these companies. Also, it emerged from the responses that 19 of the processors were no longer in operation. This reduced the final survey population to 441. After 10 days, a reminder letter (Appendix B) was sent to those companies that had not responded. One month later a second reminder letter (Appendix C), plus a copy of the questionnaire, was mailed to those companies who had not responded.

Fieldwork

Undertaking field studies of two communities was the best way to investigate local experiences in developing an agri-processing industry. The source of information from fieldwork was interviews undertaken in the two selected[4] communities (Bow Island and Smoky Lake). This was supplemented by documentary information acquired prior to and during the fieldwork. Interviews were undertaken with municipal officials, agri-processing plant management and farmers (see Appendix D). The interviews were semi-structured with a prepared set of subject areas to be discussed. The emphasis of the interviews varied

depending on the perspective of the individual being interviewed. When interviewing farmers, the emphasis was on outlets and options for marketing produce. For agri-processing management, the reasons for and impact of, the present location were considered more pertinent. The local government officials' interviews focused on changes in the local economy and agricultural base, initiatives undertaken to develop agri-processing, and the impacts of such initiatives. Notes were taken during and at the end of each interview.

In the case of Bow Island, interviews were conducted on November 18 and 19, 1992. Community profiles published by the Town of Bow Island and by the Alberta Department of Economic Development and Trade were used as sources for demographic, agricultural and employment data. In the instance of Smoky Lake, interviews were conducted on June 29 and 30, 1993. Community profiles published by the Department of Economic Development and Trade and data obtained from the Agricultural Officer were the sources for the documentary community data. However, because the functioning communities[5] of Bow Island and of Smoky Lake did not correspond to the official communities, some data problems resulted.

The urban and rural parts of the communities are separately administered, the urban part by the town and the rural part by the county. The data are recorded separately for the town and the county, therefore, this does not allow easy collection and analysis of the data relating to the actual functioning community. In both cases, the towns are under separate administrative control from that of the surrounding hinterland which is under the control of the local county

administration. In this study, different combinations of data were used, data based on the town, the county and the community. As far as was possible like data was only compared with like. However, in comparing county data, data for more than the community in question was being compared. In comparing town data, not all the functioning community is included. While this did not allow precise comparison between the two communities, it was unavoidable.

Data Analysis

Documentary Data

The documentary data contributes primarily to answering the first research question. This was done by classifying the data, and comparing the results of the classification between 1975, 1979, 1987 and 1991. The data were classified in three ways.

First, each plant was classified as either metropolitan area, city, town, or rural using the agri-processing directories as the basis for this location. This was done by classifying each address according to the Alberta's Municipal Affairs official population lists for 1975, 1979, 1986 and 1991. In this study, rural was considered to include rural and town Settlement Types, and urban included city and metropolitan Settlement Types. According to Statistics Canada (1987), "Urban areas are continuously built of areas which have a population concentration of 1,000 or more and a population density of 400 or more per square kilometre, based on the previous census. All others are defined as rural" (p. 35). This definition gets around the problem of the general classification of urban or rural. However, what people actually regard as their rural community also includes the

town (Tyrchniewicz, 1991). Interviews with respondents in the case studies of two communities (Chapter 6) asserted that local people regarded their community as including the town and the surrounding farms and families.

Second, the Employment Size for each plant was classified using the 1991 directory system, as follows:

- Employment Size A includes plants employing 1 to 25 employees
- Employment Size B includes plants employing 26 to 100 employees, and
- Employment Size C includes plants employing more than 100 employees.

The employment data for 1975 did not conform exactly to this classification. To circumvent this, two assumptions were consistently applied, namely: the 1975 categories of 1 to 25 employees and 16 to 35 employees were assumed to correspond to Employment Size A. Applying these assumptions minimised the likelihood of classification errors. Only those plants employing 16 to 35 employees with more than 25 employees were incorrectly classified.

Third, the 23 sectors of the industry were also classified into six Product Groups. Products similar in characteristics were grouped together (Appendix E). This was done to allow for easier analysis and discussion of the subject.

Once the data were classified, it was entered into a relational database computer package. From this package, the data were analysed in a number of ways, however, consistency in analysis by Settlement Type was applied throughout. First, the number of plants in each Settlement Type in each of the four years was

detailed. These data were then further analysed by each Product Group. The change in the number of plants located between 1975 and 1991 by Product Group was then detailed. Second, the number of plants of different Employment Sizes in each Settlement Type for the four years was detailed. This was further analysed by each Product Group. The data from these various analyses were initially structured into tabular form, then, it was presented in bar graphs.

To map the changing spatial patterns of the agri-processing industry from 1975 to 1991, database tables listing each location with an agri-processing plant, were created. Once data on changes in the number of plants located in each location were entered the tables were transferred to the Spans mapping package where the maps were produced. Settlement Type was again a consistent feature of the mapping. Maps were produced for location changes in each Product Group, as well as a map for the location changes for all agri-processing plants. Due to the parameters of the mapping software, the legends had to be presented numerically, therefore four Settlement Types are presented in the maps:

- 1.00 – 1.75 corresponds to Settlement Type 1 (metropolitan areas)
- 1.75 – 2.50 corresponds to Settlement Type 2 (cities)
- 2.50 – 3.25 corresponds to Settlement Type 3 (towns), and
- 3.25 + corresponds to Settlement Type 4 (rural areas).

The type of plant change is also represented numerically. A change of up to -.5 represents a loss of plants for that location, -.5 to .5 represents no change, and + .5 represents a gain in plants for that location.

Questionnaire Data

A relational database package was used to analyse the questionnaire data. Following entry of the data, checks were carried out to check the accuracy of the entry process. These included a random audit of the entries and double checking the correct number of total responses through database queries. In the case of open questions in the questionnaire, responses were classified similar to that in a study done by Stabler and Molder (1992). Some adjustments were made (Appendix F) to allow for frequent responses in this study that did not seem to be allowed for in the Stabler and Molder study. The frequency of responses to the different questions was then generated from the computer package. The responses were presented as representing the actual number of responses rather than percentage of total responses or other statistical means. Because of the variation in the response rate to different questions, this means of presentation was used as it always indicates the number of responses from which conclusions are drawn.

The responses were grouped and then analysed and discussed. First, the response to the questionnaire in total and by Product Group was analysed. Next, background company and employment information on the respondents, followed by employment impact were analysed. Then employment created by the programs by Product Group, its location by Settlement Type and urban/rural location was detailed. Finally, local impacts and future trends were analysed, through raw material, commuting distance, labour availability and future employment responses. Analysis of the responses on reasons for current location, relocation and anticipated relocation was also carried out and included in Chapter 4.

Fieldwork Data

The analysis of fieldwork data had two components. First, the documentary data were analysed. The data collected on demography, employment and agricultural activity were organised so the two communities or counties were comparable. The data were then grouped and discussed under the following headings: agricultural base, population change, and income and employment. In the income and employment section, the basic to non-basic employment ratios were calculated using the community-profiles employment data.

Second, the interview data collected from Bow Island and Smoky Lake were analysed. The interview data were integrated in the discussion and analysis of documentary data.

Data Presentation

The data were presented and discussed in the format and order of the research questions. In Chapter 4 the analysis of the change in plant location between 1975 and 1991 is presented. Also, discussed are the reasons for current location, relocation and anticipated relocation. These additional factors complemented the discussion of location change. Chapter 5 presents the analysis of the number, type and location of jobs created in the government programs. Also discussed is the analysis of local impacts and future trends. In Chapter 6 the questions of location change and rural development policy are examined through the case studies of Bow Island and Smoky Lake. The factors which facilitate or hinder development, and the impact of that development or lack of development in the agri-processing industry were analysed at a local level.

Within each of the data Chapters 4, 5, and 6, a similar approach to the presentation of the data is observed. The Figures and Maps used to present the data are included within the chapters. The Tables, which form the basis for the Figures, are included in Appendix G.

Notes

1. In this study, the shift in location includes a combination of plants closing, new plants opening and plants relocating. Because of data limitations, analysis of each type of plant change was not possible. However, using questionnaire data analysis of relocations since 1975 and anticipated relocations was undertaken.
2. The first Agri-processing Industry directory was published in 1973 followed by 1975, 1977, 1979. There was a break in publication of the directories from 1979 to 1985. Since 1987, the directories have been published annually.
3. The limitations that the incompleteness of employment data placed on analysis and interpretation is discussed in Chapter 4.
4. The reasons these two communities were selected are discussed in Chapter 6.
5. The functioning communities as viewed by interview respondents are discussed in Chapter 6.

CHAPTER 4

ANALYSIS OF EMPLOYMENT AND LOCATIONAL CHANGES

In this chapter, the degree to which there has been a shift in the location of plants and employment in Alberta's agri-processing industry between 1975 and 1991 is analysed. The hypothesis that rural areas have lost plants and employment to urban areas, will be tested. Prior to the analysis, the limitations of the settlement and directory data will be outlined. Then, the total number of plants and the percentage share of total plants located in each Settlement Type for each of the six Product Groups for 1975, 1979, 1987, and 1991 will be analysed. Also in this section, the province-wide spatial trends of plant location changes will be examined through a series of maps of the location of each Product Group's plants, as well as the location of all of Alberta's agri-processing plants. Next, the number of plants and the percentage share of total plants of different Employment Sizes for each Settlement Type and each Product Group will be detailed. Finally, the trends apparent from these analyses will be interpreted and discussed.

Questionnaire responses on the reasons for location and locational change are used in combination with trends and patterns available from the analysis.

Limitations on the Quality of the Data

The directory and settlement data had certain limitations that affect how the analysis has been interpreted. The directories, the main source of the number, location and employment size of Alberta's agri-processing plants, have limitations due to their incompleteness, their method of recording employment data, and the changes in the criteria for recording certain types of plants. While every attempt

was made to ensure the directories were complete, not all plants located in Alberta may have been included in the directories[1].

In the earlier directories, particularly in 1975, the Employment Size data were not complete for all the plants listed[2]. Plants, for which employment data were not available were predominately small bakery and meat plants that were most likely to have been of Employment Size A[3] (employing 1 to 25 employees). In addition, employment data in all the directories were recorded in terms of categories of employment, rather than specific numbers of employees for each plant. Also, retail bakery plants were not included in any of the directories after 1975[4]. In the 1975 directory, fruit and vegetable processors were only included, whereas in later directories fruit and vegetable packaging operations were also included. To overcome these limitations, analysis of the Product Group including bakeries concentrated on 1979 data, rather than 1975 data. In addition, analysis of the shift in employment was based on trends in different employment categories, rather than the changes in actual numbers employed during the study period. In the analysis concerning Employment Size and location for meat plants, less emphasis was placed on 1975 data concerning Employment Size A, with more emphasis on 1979, 1987 and 1991 data.

Settlements in this study are classified using the official classification by Alberta Municipal Affairs. This classification does not strictly conform to population guidelines[5]. One city, Drumheller had a population of less than 10,000 in 1991. Several towns had populations of less than 1,000, while, one village had a population of more than 1,000. The most notable exception is Sherwood Park,

which remains a hamlet, although it had a population of 36,807 in 1991. The result of these inconsistencies is that some plants, while correctly officially classified, are of a different population classification. However, the impact of this on the results is small, because relatively few agri-processing plants are located in the centres involved.

Locational Analysis

In this section, the changes in the location of processing plants in Alberta during the study period are analysed in two ways. Initially, the number and share of plants in each Settlement Type are analysed. Also, the spatial pattern of location shifts is analysed through a series of maps. Then, the number and share of plants of different Employment Sizes in each Settlement Type is analysed. This permits an analysis of the shift in the location of plants, by Settlement Type, by spatial pattern and by Employment Size. The shift includes a combination of new plants opening, plants closing and plants relocating. Analysis of each type of separate shift is not possible because of data limitations, however, using the questionnaire data, analysis will be undertaken of plant relocations and anticipated relocations.

Each of these analyses is undertaken in a sequence, going from the general trends and patterns to the more specific. In the analysis of plant location by Settlement Type, the total number of plants in the province in each of the four time periods is examined first. Then, the number of plants and the share of total of plants in each of the Settlement Types are analysed. Last, the number of plants and the share of total plants in each Settlement Type are examined for each of

the six Product Groups. In the case of plant location by Employment Size, the total number and share of plants in each of the three Employment Sizes are examined first. Then, the total number and share of plants of each Employment Size in each Settlement Type are analysed. Last, the number and share of plants are analysed for each Product Group by Employment Size and Settlement Type.

Plant Location by Settlement Type

The total number of plants located in Alberta has fluctuated in the period under study resulting in a net slight decrease (Figure 4.1, Table G4.1). The number of plants decreased from 484 to 293 during 1975 to 1979, but as indicated earlier, this is primarily due to a difference in how the data were recorded. Between 1979 and 1987 there was a significant increase to 382, and a further increase to 467 by 1991.

From 1975 to 1991, there have been variations in the total number of plants and the relative proportion of the total plants located in the different Settlement Types (Table G4.1). Metropolitan areas' (Settlement Type 1) share of total plants decreased from 42% in 1975, to 33% in 1979, increased to 36% in 1987, and further increased to 41% by 1991. The overall net result is a decline of 9 in the number of plants, or a 1% decline in the share of plants. However, the inclusion of retail bakeries in 1975, and their subsequent exclusion, obscures significant growth in the number of plants in metropolitan areas. Alberta cities' share of plants (Settlement Type 2), also fluctuated with little overall change. The percentage of total plants for cities increased from 16 in 1975, to 21 in 1979, declined to 16 in 1987, and then increased slightly to 17 by 1991. The net effect is

Location of Alberta's Agri-processing Industry for 1975, 1979, 1987 and 1991

Source: Alberta's Agri-processing Industry Directories

Figure 4.1.

an increase of 1 plant for cities in Alberta. In the case of towns, the number of plants has declined by 3%, while the relative share was stable at 33% in 1975 and 1979. It increased slightly to 34% in 1987 and declined to 30% by 1991. The overall outcome for towns then, is a net decline of 21 in the number of plants and a net decline of 3% in the share of total plants. For rural areas, there have been slight variations resulting in an overall increase. The percentage of plants located in rural areas rose from 9% in 1975, to 13% in 1979, and 14% in 1987, then fell to 12% by 1991. The net result is an increase of 12 in the number of plants, 3% in the share of plants from 1975 to 1991.

The spatial pattern of plant location changes for all the Product Groups is illustrated in Map 4.2. An explanation of the legend used is detailed in the section on Data Analysis, Documentary Data section in Chapter 3. A base map of Settlement Types and locations is also included (Map 4.1) as a reference for the other maps. Bakeries have been excluded from the map of plant location changes because of the change in classification between 1975 and 1991. The greatest concentration of plant locations is in and around Edmonton, Red Deer, Calgary, Lethbridge and Grande Prairie. There are more dispersed locations of plants in the east-central and the northwest regions of Alberta.

The areas in which concentrations of growth are apparent are in and around Edmonton and Calgary and the region between these two centres. South-central and southeastern Alberta are also areas of growth, as are the towns north and west of Edmonton. Two communities in southern Alberta recorded the highest number of plant gains for non-urban centres, they were Bow Island with a

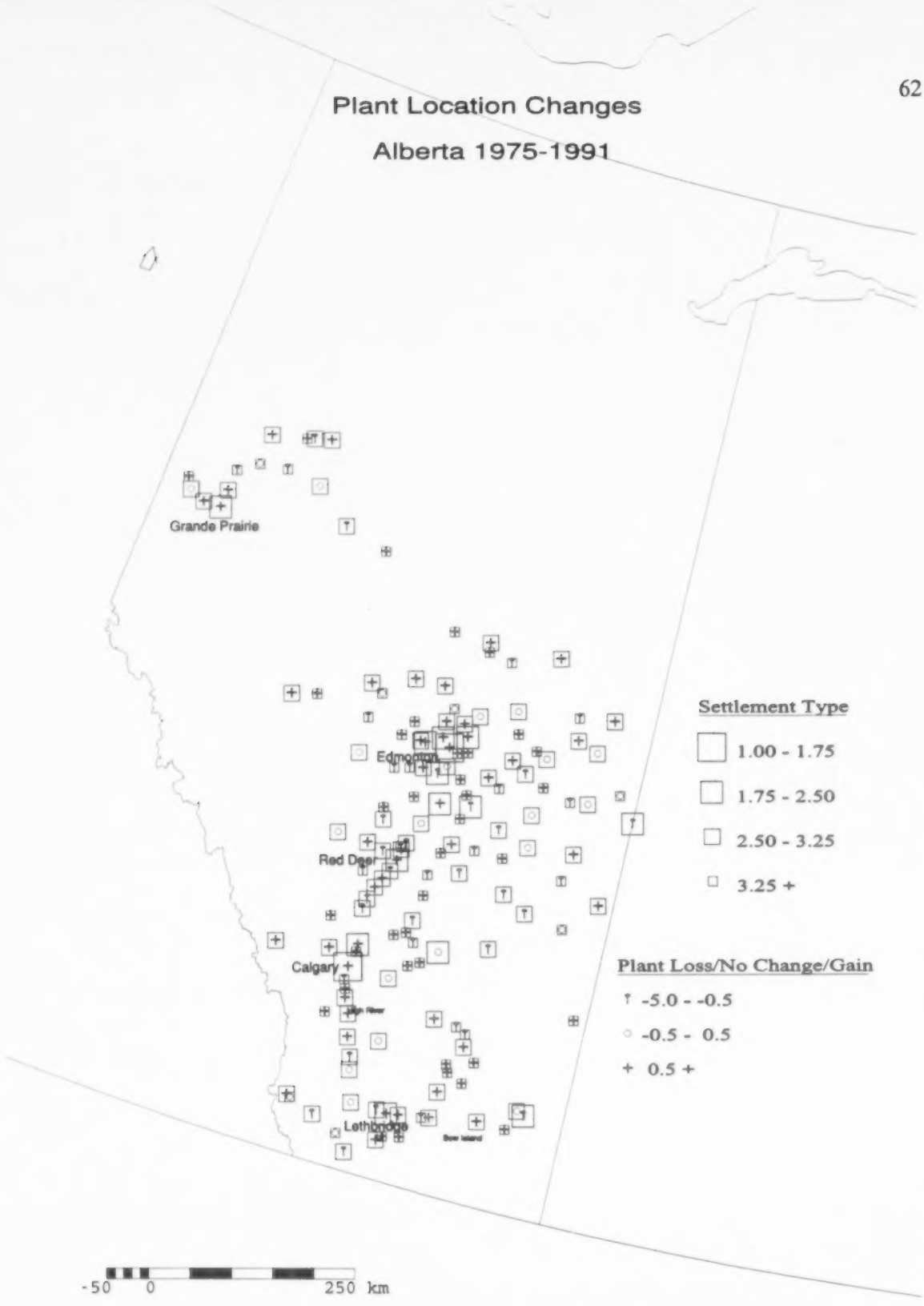
Settlement Types and Locations

Alberta 1991

Map 4.1

Plant Location Changes

Alberta 1975-1991



Map 4.2

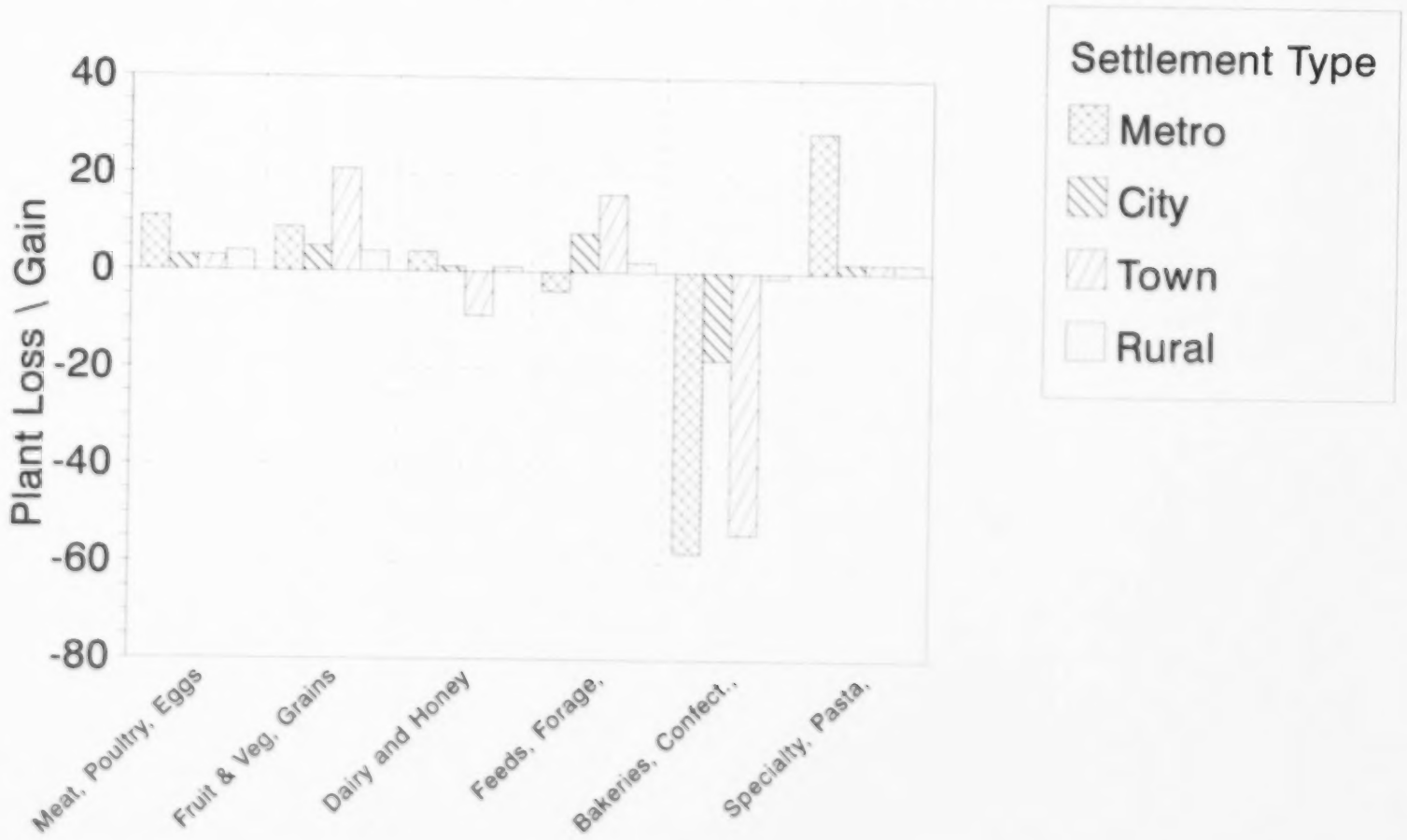
gain of 6 plants and High River with a gain of 3 plants[6]. The Peace River area, including the area just to the north of Grande Prairie, is also an area of growth. Because of the significant growth of agri-processing during the study period, areas of growth are more numerous and obvious than areas of decline. However, decline is evident in the east-central region and to a lesser extent in southwestern Alberta.

Overall, there has been an increased concentration of agri-processing plants in and around Calgary and Edmonton. In addition, there has been considerable growth in the Edmonton-Calgary corridor and in southern Alberta. The growth is evident in all the Settlement Types, but town and rural locations have done particularly well in southern Alberta and in the Edmonton-Calgary corridor. While there has been significant plant gains by rural and town locations, much of this is concentrated in the inner-urban fields of Edmonton, Red Deer, Lethbridge and Calgary. There have been exceptions to this such as the Grande Prairie and Peace River areas, southern Alberta, and areas north and west of Edmonton. In relation to the Settlement Type analysis, there has been a steady increase in the number of plants during the study period (considering the inconsistency in the bakery data). All Settlement Types have benefited relatively equally from the growth with only minor variations in the share of total plants in each Settlement Type over the 16-year period. For a closer examination of these trends an analysis of each Product Group follows.

Product Group 1: Meat, Poultry, Eggs and Fish

For Product Group 1, the total number of plants, which stood at 128 in 1975, declined to 114 in 1979, and 108 in 1987, only to increase to 149 by 1991. Metropolitan areas fared best in this Product Group, increasing the number of plants by 11 and the share of total by 3%. Rural areas were next best, gaining 4 plants or 1% of the total. Cities and towns, both gained 3 plants, however this represented a decline of 1% of total for cities, and 3% for towns. This Product Group has achieved a steady growth in the number of plants despite an initial decline. All Settlement Types have gained, but metropolitan areas have gained most (Figure 4.2, Tables G4.1 and G4.2).

The spatial pattern of plant location changes for Product Group 1 is illustrated in Map 4.3. This Product Group comprises the largest number of plants and includes a variety of plant sizes and types ranging from large meat-packing plants to small community-based meat markets. The greatest concentration of plants is in and around Edmonton, Red Deer and Calgary. There are also lesser concentrations near Lethbridge and Grande Prairie. Locations recording no change, or plant losses, predominate in the southern and east-central regions of the province. Towns and rural area locations recording growth are evident close to Edmonton (in a belt east and north) and in Calgary. All the metropolitan areas, excluding Calgary and Grande Prairie, exhibit no change, or plant losses. Calgary experienced a gain of 12 plants[6] in the study period, therefore, this accounts for more than all the growth in the metropolitan Settlement Type. Except for Calgary and Grande Prairie, a deconcentration trend to towns and rural areas is evident.

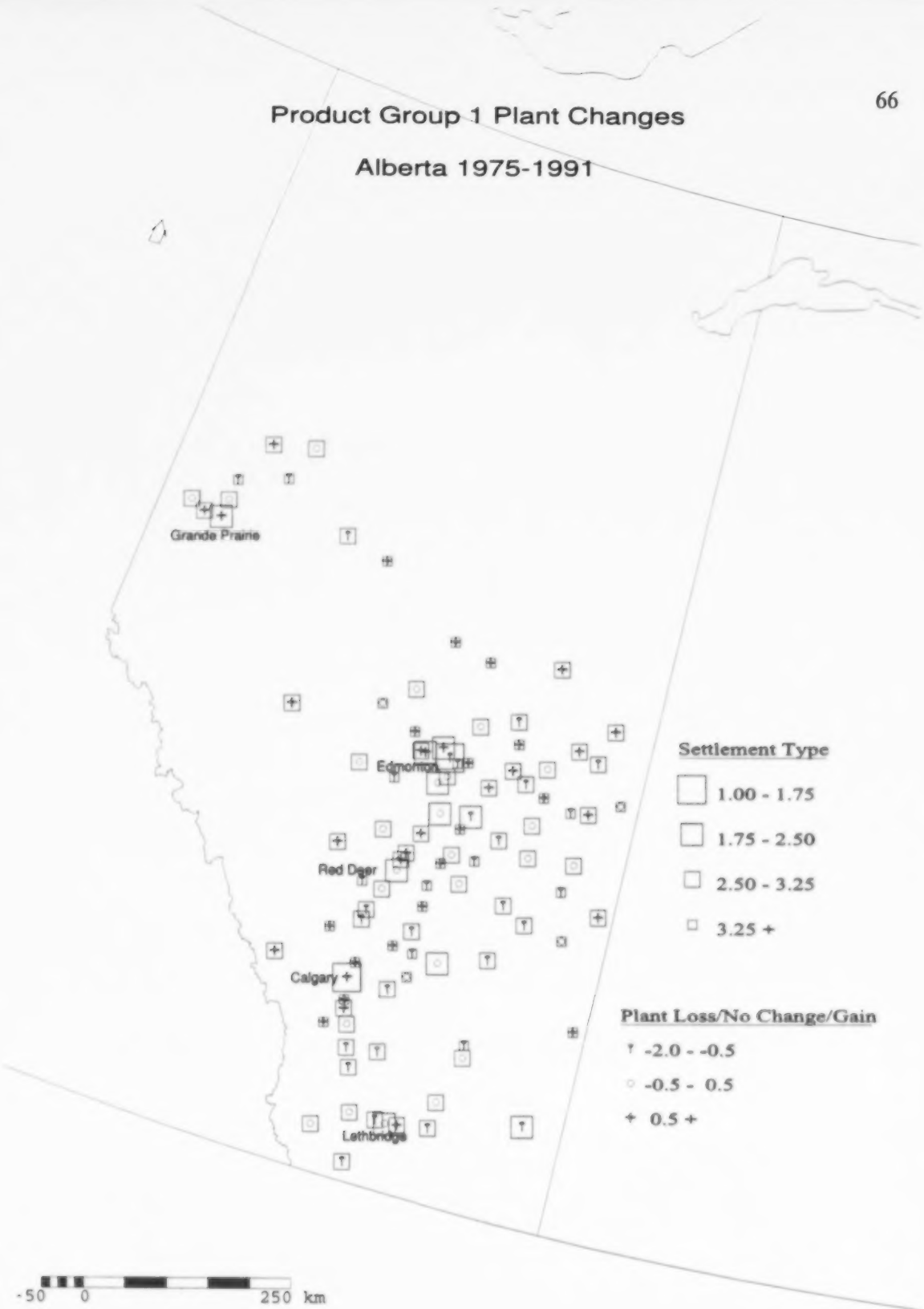


Source: Alberta Agriculture Agri-processing Industry Directories

Figure 4.2.

Product Group 1 Plant Changes

Alberta 1975-1991



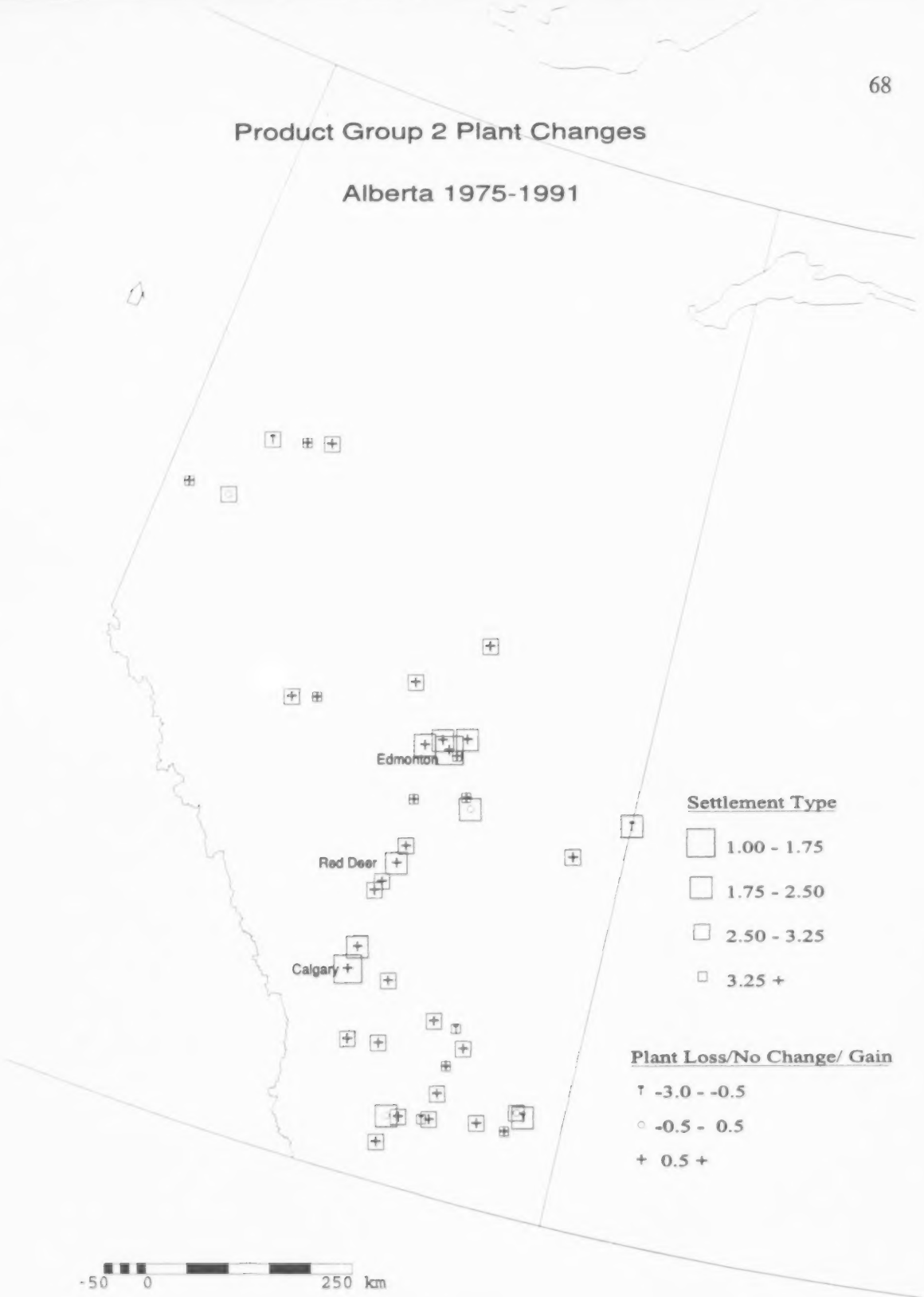
Map 4.3

There is also evidence of rationalisation with plant losses in eastern and southern regions.

Product Group 2: Fruit & Vegetables, Grains, Oilseeds and Special Crops

The number of processing establishments for Product Group 2 has grown steadily during the study period, except for a decline from 39 to 32 between 1975 and 1979. By 1987 there were 47 plants, which grew to 78 by 1991. All four Settlement Types gained establishments, however, only towns gained in share for this Product Group. This happened as towns had a relatively small number of plants in this Product Group that more than tripled during the study period. Towns gained 21 establishments and 17% of the total, metropolitan areas gained 9 and lost 4% of the total share. Cities gained 5 establishments and lost 12% of share, while rural areas gained 4 and lost 1% of total share. There has been substantial growth in this Product Group, all Settlements Types have gained, however, towns have gained the most (Figure 4.2, Table G4.2).

A spatial analysis of Product Group 2 plant location changes is illustrated in Map 4.4. The almost exclusive growth in all locations is apparent in this map. Growth is most obvious around Edmonton, Calgary, Red Deer, in southern Alberta, and in other scattered centres. The influence of fruit and vegetables locating close to the urban centres is visible, as is the concentration of special crops in southern Alberta. Edmonton gained 6 plants, Calgary gained 3 and Red Deer gained 2 plants[6] in this Product Group. While this represents strong growth, a consistent trend throughout the province is the growth of plants in towns. There


Product Group 2 Plant Changes
Alberta 1975-1991
Edmonton
Red Deer
Calgary
Settlement Type
1.00 - 1.75
1.75 - 2.50
2.50 - 3.25
3.25 +
Plant Loss/No Change/ Gain
-3.0 - -0.5
-0.5 - 0.5
0.5 +
-50
0
250 km

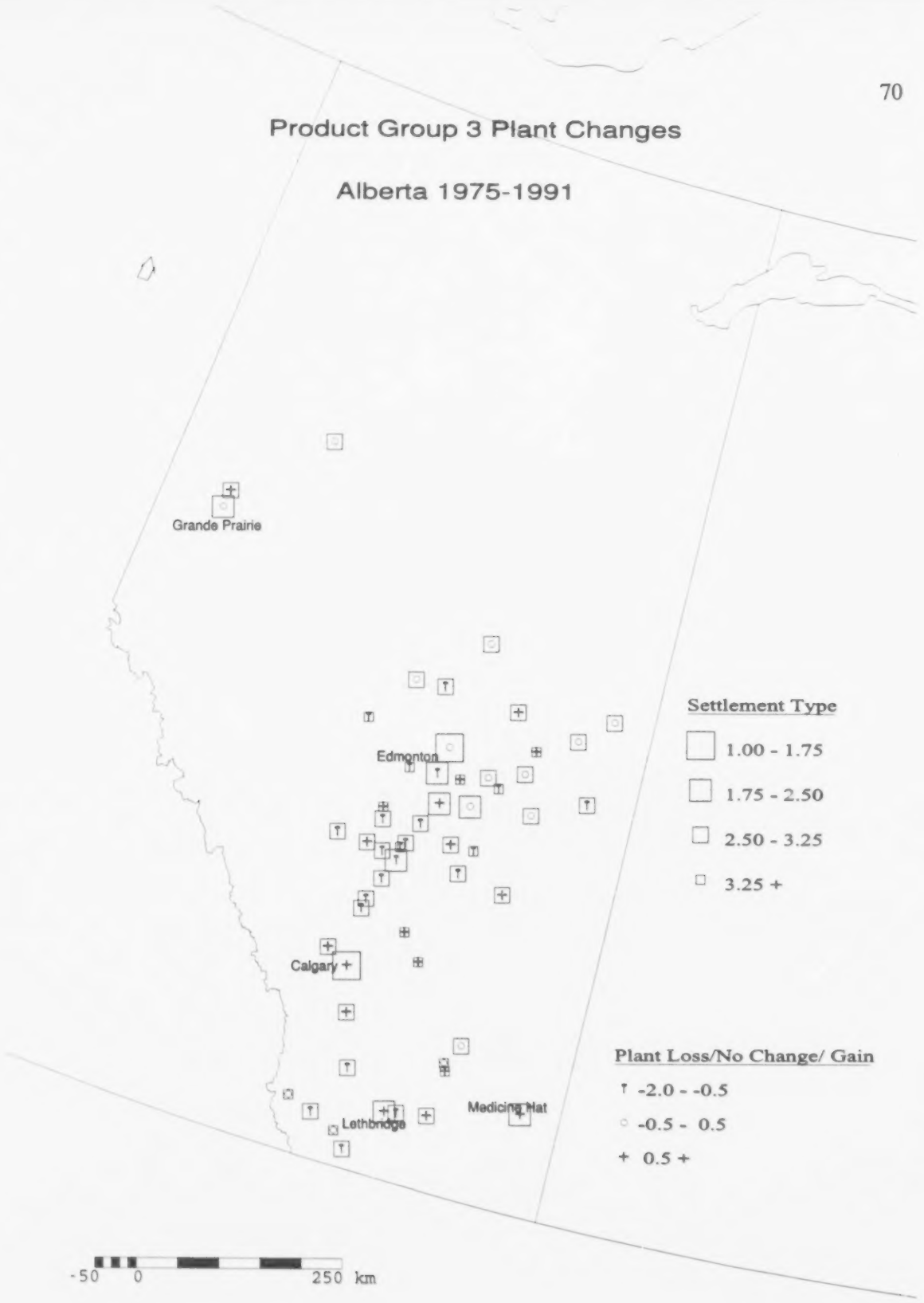
Map 4.4

is also some growth in rural areas scattered in the regions of growth, but it is much less significant than that in towns.

Product Group 3: Dairy and Honey

Dairy and honey establishments fluctuated in number during the study period declining from 59 in 1975, to 50 in 1979, then increasing to 63 in 1987, and declining to 56 by 1991. Metropolitan areas gained most increasing the number of plants by 4 and their share of total plants by 9%. Cities and rural areas both changed little, as each gained one plant and 2% of their share of total plants. The towns of Alberta fared badly, losing 9 plants and 13% of their share of total plants. The data, however, hides a declining trend in dairy plants for towns and rural areas. The number of honey processors has increased in towns and rural areas, thereby obscuring a greater decline in dairy plants in these Settlement Types[7]. Overall, the number of plants in this Product Group has fluctuated, with slight gains for metropolitan areas, and a loss for towns. Towns and rural areas have lost dairy plants and gained honey processors (Figure 4.2, Table G4.2).

The spatial analysis of this Product Group (Map 4.5) reveals a mixed trend of some growth, some decline, and some locations with no change. The greatest concentration of plants is in a belt northeast and southwest of Edmonton. In the northeast part of this belt, there has been no change, or some growth in the number of plants. On the other hand, in the southwest part, there has been considerable decline of plants. In and around Calgary, Lethbridge and Medicine Hat, there has also been growth. In the Peace River region, there has been stability with a little growth. Since the rural gains have been principally honey


Product Group 3 Plant Changes
Alberta 1975-1991
Grande Prairie
Edmonton
Calgary
Lethbridge
Medicine Hat
Settlement Type
1.00 - 1.75
1.75 - 2.50
2.50 - 3.25
3.25 +
Plant Loss/No Change/ Gain
-2.0 - -0.5
-0.5 - 0.5
0.5 +
-50
0
250 km

Map 4.5

processors[7], a trend of concentration in the dairy industry is apparent. Towns have experienced plant losses or no change, while cities and metropolitan areas experienced no change or plant gains. Overall, there have been closures of plants in towns in the southwest and in the area between Edmonton and Calgary while the cities and metropolitan areas have maintained, or increased, their share of plants.

Product Group 4: Animal Feeds, Forage and Pet Foods

Product Group 4 plants have grown steadily since 1975, except for a decline from 1987 to 1991. From a low of 50 plants in 1975 there has been an increase to 54 in 1979, 79 in 1987 and a decline to 72 in 1991. Towns have gained 16 plants and 15% of the total share. Next best were cities, with a gain of 8 plants and 6% of the total share. Rural areas also gained 2 plants, but lost 3% share. Metropolitan areas fared worst, losing 4 plants and 18% of their share of total plants in this Product Group. Within this Product Group, pet foods have only recently emerged; a greater decline, therefore has taken place in the other industries in the Product Group[8]. This Product Group has experienced overall growth despite a recent decline. Towns and cities have gained, while metropolitan areas have lost plants (Figure 4.2, Table G4.2).

A spatial analysis of plant location changes for Product Group 4 is illustrated in Map 4.6. This Product Group displays a deconcentration trend from the two metropolitan centres to smaller settlements adjacent to Edmonton, Red Deer and in southern Alberta. The growth in southern Alberta is significant. Lethbridge alone gained 5 plants[6] during the study period. Also, in the study period, Red

Product Group 4 Plant Changes

Alberta 1975-1991

Map 4.6

Deer gained 3 plants, while Edmonton lost 4 plants[6]. As explained above, the number of pet food plants in metropolitan areas has grown, therefore, there has been a significant loss of feeds and forage plants from metropolitan areas. There have also been some isolated losses outside the metropolitan centres, mainly in towns and rural areas. Apart from Lethbridge and Red Deer, towns around Edmonton, Red Deer, and towns and rural areas in southern Alberta, particularly adjacent to Lethbridge, have gained. Feeds plants have concentrated in southern Alberta, an area where feedlots and beef-packing plants are also centred. This is evidence of a spatially-integrated pattern of related processing activities. Apart from southern Alberta, where the growth in the number of plants has been well dispersed, growth in the rest of the province is concentrated close to the major metropolitan centres.

Product Group 5: Bakeries, Confectionary and Snack Foods

The change in the recording of bakeries after 1975 has skewed the results for this Product Group. After 1975, only wholesale bakeries were recorded, therefore, the analysis concentrates on changes from 1979 to 1991. The number of establishments increased from 24 in 1979, to 39 in 1987, and further increased to 61 in 1991. However, within this Product Group, there has been substantial growth in the confectionary and snack food industries[9], therefore the principal growth in the number of plants is due to growth in confectionary and snack food, rather than in bakeries. All Settlement Types have gained in the number of plants, as follows: metropolitan areas – 26 plants, cities – 1 plant, towns – 7 plants, and rural areas – 3 plants. As a share of total plants, metropolitan areas and cities

lost 11% and 3% respectively, while towns and rural areas gained 9% and 5% (Figure 4.2, Table G4.2). Figure 4.2 does not reflect the trends described above because it represents changes from 1975 to 1991.

The spatial analysis of plant changes in Product Group 5 is illustrated in Map 4.7. Bakeries are excluded because of the change in classification of bakeries after 1975, therefore, the map only illustrates changes in the confectionary and snack food industries. All locations, with the exception of one, exhibit growth in the number of plants. The growth is concentrated in metropolitan areas with Calgary gaining 7 plants and Edmonton gaining 2 plants[6]. There is also some growth in towns adjacent to Calgary and in southern Alberta in Taber and Bow Island. These industries display growth mainly in metropolitan areas, with some other smaller settlements also gaining. This Product Group has experienced growth in the number of plants since 1979, particularly in the confectionary and snack food industries. Metropolitan areas have been the primary beneficiaries of this growth, however, towns and rural areas have also benefited. Due to the exclusion of bakeries from the spatial analysis, Figure 4.2 does not reflect the spatial trends described.

Product Group 6: Specialty Foods, Pasta and Miscellaneous

The number of plants in Product Group 6 has risen steadily from 16 in 1975, to 19 in 1979, to 46 in 1987, and 51 in 1991. Metropolitan areas are the predominant location for this Product Group and while all Settlements Types have gained, this Settlement Type has gained most. Metropolitan areas gained 29 establishments while the others gained 2 each. Metropolitan areas also gained a

Product Group 5 Plant Changes*

Alberta 1975-1991

Map 4.7

share of total plants, increasing by 9% while rural areas increased by 2%. The share of total plants for cities and towns declined by 9% and 4% respectively. This Product Group has more than tripled its number of processors in 16 years. By 1991, 78% of the plants were metropolitan based (Figure 4.2,Table G4.2).

The spatial pattern of plant changes from 1975 to 1991 for this Product Group is illustrated in Map 4.8. A few locations account for most of plants in this Product Group. During the study period, the dominating trend has been growth, Calgary and Edmonton gained 12 and 17 of these plant[6] types respectively. There has been growth in two city locations (Red Deer and Wetaskiwin), and also in a few scattered towns. This predominately metropolitan-based Product Group has only a few town, and no rural, plants.

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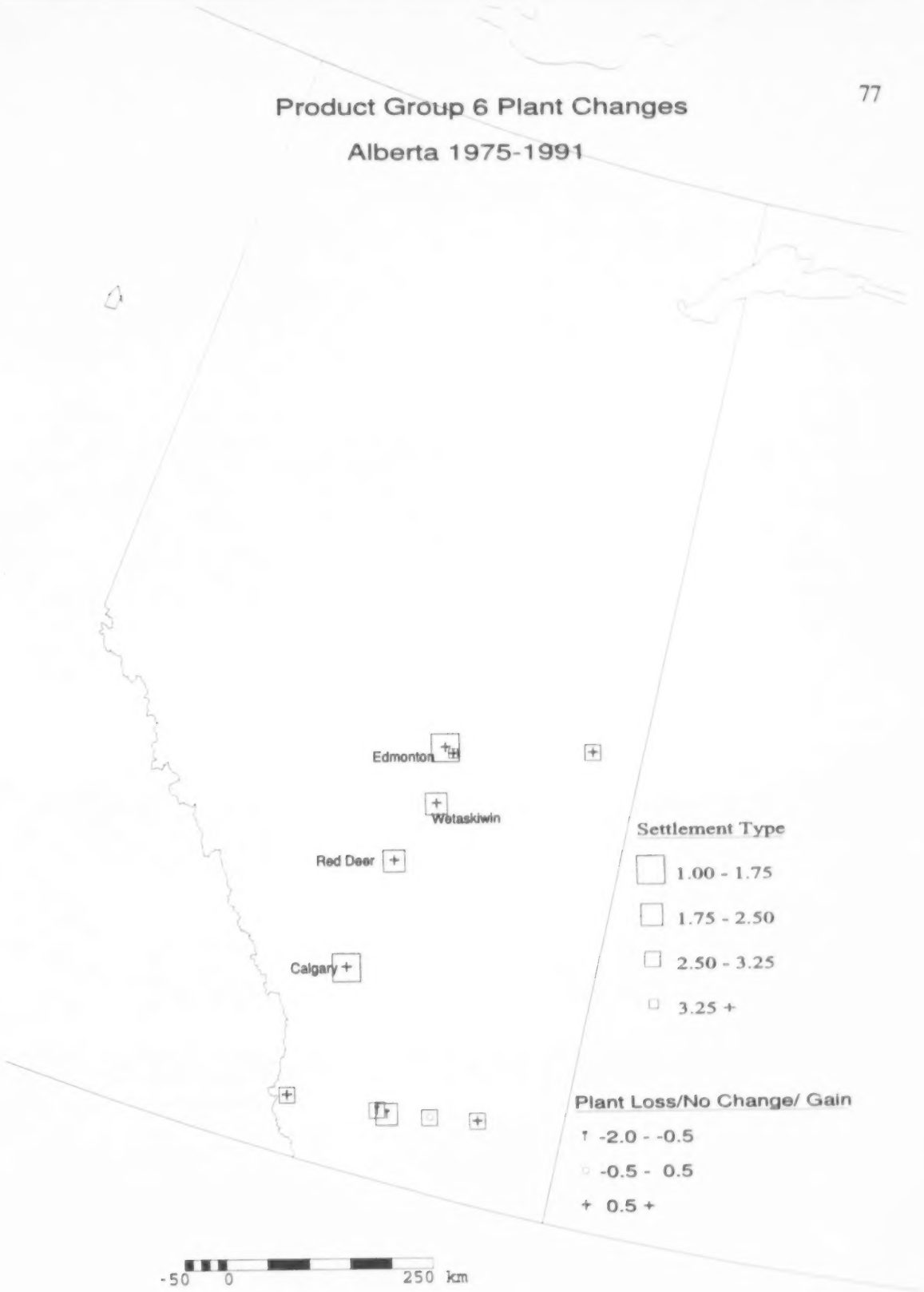
To summarize, there has been an increase in the number of plants in total during the study period and all Settlement Types have proportionately benefited from this growth. There has, however, been considerable variation in trends within the different Product Groups. Metropolitan areas have gained from an increase in the number of meat, fruit & vegetables, dairy honey, and specialty foods Product Group plants. On the other hand, this Settlement Type has lost feeds plants. The cities of Alberta have gained in the fruit & vegetables and feeds Product Groups. Towns have gained in the fruit & vegetables and feeds Product Groups while losing in the dairy Product Group. Rural areas have gained in the meat Product Group and from honey processing, but have lost dairy plants. Also, different

Product Group 6 Plant Changes

Alberta 1975-1991



Map 4.8

spatial patterns were evident. Deconcentration from urban areas was apparent in the meat and feeds Product Groups.

Rationalisation of smaller settlement locations was evident in the dairy industry. Strong growth in metropolitan locations was noticeable in the specialty foods Product Group and the confectionary and snack food industry. Growth in settlements close to metropolitan areas was also noticeable in the fruit & vegetables and feeds Product Groups. Regional concentration of growth in southern Alberta was also obvious in the fruit & vegetables and feeds Product Groups.

Overall, there has not been a shift in the location of agri-processing plants from rural-to-urban during the study period. The increase in the number of plants has been significant, but the share of total plants located in rural areas has actually increased. Towns and rural areas close to the metropolitan centres benefited to a greater extent than those further from these centres. However, three regions in the outer-urban fields or beyond, have also benefited from a growth in agri-processing plant locations. They were southern Alberta, the Peace River region, and the regions north and west of Edmonton. However, from 1987 to 1991 the number and share of plants located in rural areas has declined.

The study by Harvest Foods (1992) which included an analysis of the change in the number and location of plants between 1975 and 1991, broadly[10] agreed with these findings for Alberta. In that study, urban was defined as locations in Calgary and Edmonton and immediate surrounding communities. Rural was defined as all other communities. Results showed the number of firms increased both in rural and urban locations. The majority of sectors showed an in-

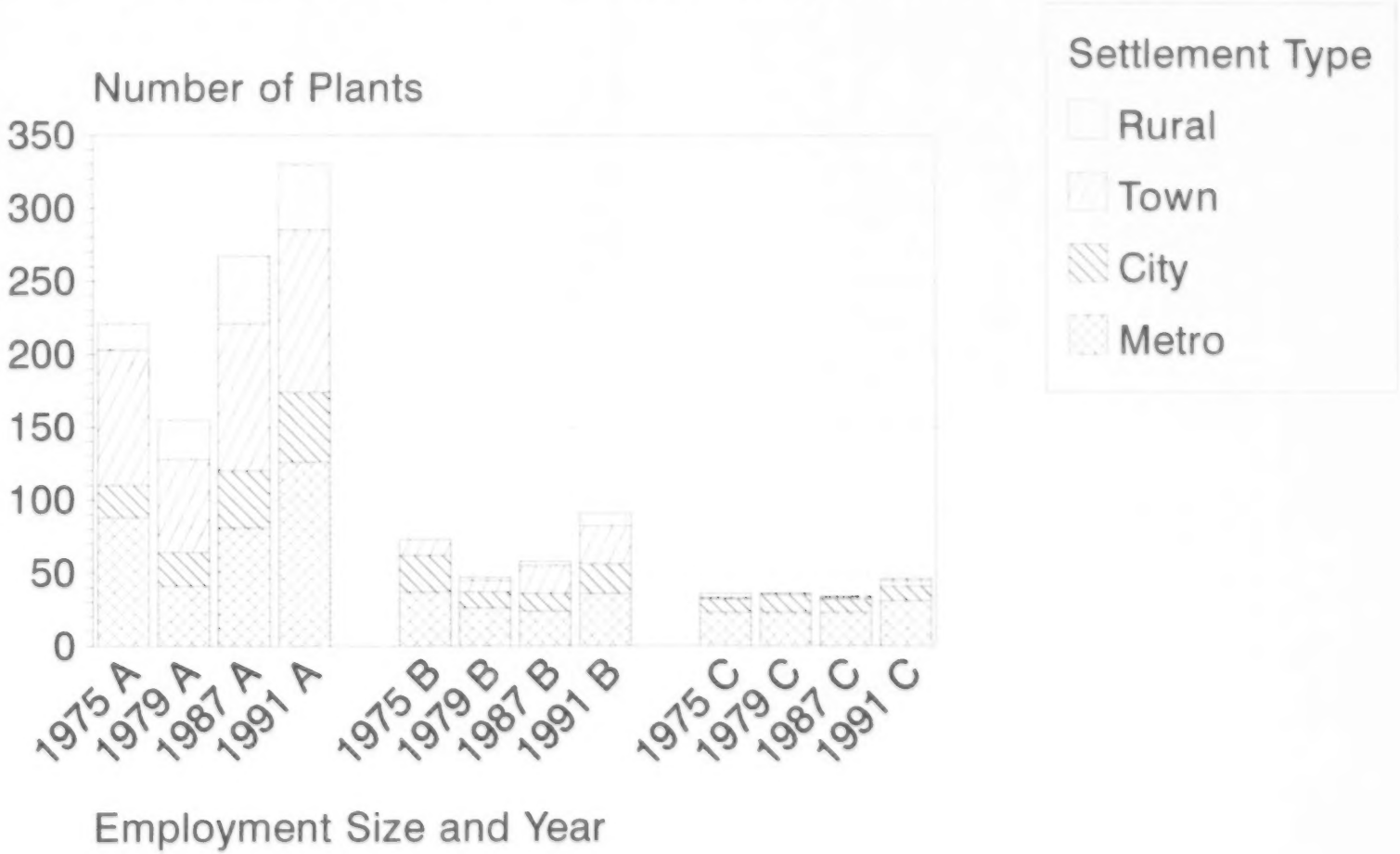
crease. Excluding bakeries, rural firms gained 46, while urban firms gained 52. Special crops, specialty foods, confectionary and fruit & vegetable processing increased the share of total processing in rural areas; while, fruit & vegetables, pasta and specialty foods increased the share in urban areas.

Plant Location by Employment Size

The total number of plants employing 25 employees or less (Employment Size A) for which data are available declined from 1975 to 1979 (Figure 4.3, Table G4.3). The decline is primarily due to a change in the type of operations classified as agri-processing plants (i.e., the exclusion of retail bakeries after 1975), rather than significant changes in the actual number of plants[4]. There has been a steady increase in the number of Employment Size A plants from 155 in 1979, to 267 in 1987, to 330 in 1991. The percentage share of total plants with 25 employees or less has also increased from 65% in 1979, to 74% in 1987, and then declined to 71% in 1991. The net change from 1975 to 1991 shows a positive increase in the number of plants and the share of total plants. However, because of the inconsistency of the data in 1975, compared to the other time periods, and its incompleteness in terms of Employment Size, the net shift from 1979 is a more realistic reflection of the actual trends.

The total number of plants employing 26 to 100 employees (Employment Size B) declined from a high of 73 in 1975, to 47 in 1979, and has since increased to 58 in 1987, and 91 in 1991. As a share of total plants, this Employment Size has fluctuated by decreasing from 22% in 1975, to 20% in 1979, decreasing to 16% in 1987, and increasing to 20% in 1991. The overall change in this period has

Plant Location by Employment Size for 1975, 1979, 1987 and 1991



Employment Size, A= 0-25employees, B=26-100 employees, C= over 100 employees

Source: Alberta's Agri-processing Industry Directories

Figure 4.3.

been an increase of 44 in the number of plants since 1979 which translates into a zero relative share increase.

Plants employing 100 or more employees (Employment Size C) have changed little, until recently. The number of plants remained at 36 in 1975 and 1979, declining slightly to 34 in 1987, and subsequently increasing to 46 in 1991. These larger employers have declined as a share of total from highs of 15% in 1979, and 11% in 1975, to 10% in 1987, and 9% in 1991. The overall result for this Employment Size is an increase in the total number of plants by 10, but a decline in the relative share by 2%.

Next, the shift in the number and relative share of processing plants of different Employment Sizes within each of the Settlement Types will be examined. For metropolitan areas (Settlement Type 1), Employment Size A plants have increased in total number, particularly since 1979, and in their relative share. The number of Employment Size B plants have remained stable, but their share has declined. Employment Size C plants have increased in number, but their relative share remains unchanged (Figure 4.3, Table G4.3). Metropolitan areas then, have gained significantly in smaller agri-processing plants, lost out relatively on the growth of medium-sized processors and retained their share, with some absolute growth of larger processors.

Cities (Settlement Type 2), have experienced considerable growth of Employment Size A processors, both absolutely and relatively (Figure 4.3, Table G4.3). The number of Employment Size B plants has declined, but the decline was primarily from 1975 to 1979. Since then there has been growth in the

number of plants and a slight increase in the share. Employment Size C plants have fluctuated slightly with a net increase of 1 and a 3% decline in their relative share. Cities have done well in gaining smaller agri-processors, but have just maintained the number of medium and large processors.

In towns (Settlement Type 3), the total number of plants for each of the three Employment Sizes has increased, significantly for small and medium-sized employers, and slightly for large Employment Size C processors (Figure 4.3, Table G4.3). As a share of total agri-processing plants, Employment Size A plants have lost by 10% from 1975 and 9% from 1979, Employment Size B plants have increased by 8%, and Employment Size C plants have increased slightly by 2%. Towns have gained plants of all Employment Sizes, but have gained more of medium and large employers than expected. However, towns have not gained their share of smaller employers, even when the distortions of the 1975 data are taken into account.

Rural areas, which attract the smallest share of total plants, have gained small and medium-sized processors (Figure 4.3, Table G4.3). The number of plants gained has been significant for both sizes, however, similar to towns, rural areas have gained more than their share of Employment Size B processors while losing their share of Employment Size A processors. The number of Employment Size C plants in rural areas is too small to interpret general trends. From a high of 3 plants in 1975 the number of larger employers has since fluctuated from 0 to 1. Rural areas have increased their share of medium-sized processors and while

the number of smaller processors has grown, it has not been as great as that in metropolitan areas and cities.

In brief, all three Employment Sizes have experienced growth in the study period. The growth in the number of smaller processors has been greatest and metropolitan areas and cities have benefited most from this growth. Medium-sized processors growth has resulted in gains for towns and rural areas, while metropolitan areas and cities have maintained their number of plants. The growth in the number of large processors, which is evident only from 1987 to 1991, has benefited metropolitan areas and towns. The towns of Alberta increased their share, and while metropolitan areas increased their number of large processors, their share has not increased.

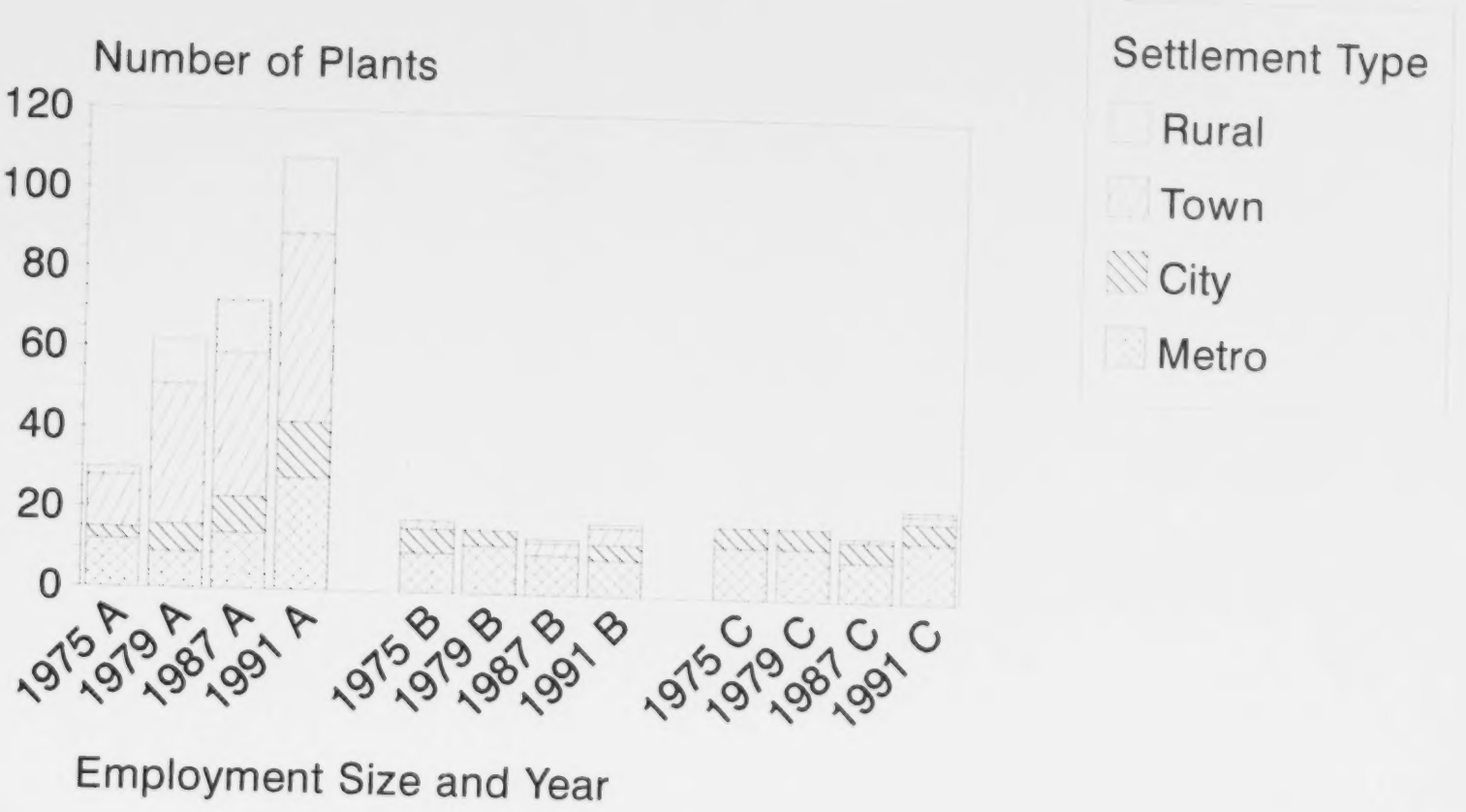
Based on this analysis of the location of agri-processing plants of different Employment Sizes, there has not been a shift in the location of employment. Rural areas have benefited from the growth in the agri-processing sector with an increase in the number of small and medium-sized employers. However, the number of larger employers has declined. Also, while the growth continued for the other Settlement Types up to the 1987-1991 period, growth has not continued for rural areas with the exception of medium-sized processors. Considering the continuing growth in metropolitan areas in this latter period, rural areas are not benefiting from this recent growth. In the next section, the trends of the location of agri-processing employment will be examined more closely through an analysis of each of the six Product Groups.

Product Group 1: Meat, Poultry, Eggs and Fish

In the period under study, plants in this Product Group have increased in number, particularly those employing 1 to 25 employees (Figure 4.4, Table G4.4). As a share of total plants, Employment Size A plants have increased their number significantly (27%), with the greatest increase being in metropolitan areas, cities and towns. The increase in towns and rural areas is overstated because of the under recording of Employment Size A plants in 1975[11]. The total number of Employment Size B plants is unchanged despite fluctuations, while its share has declined by 15%. Metropolitan areas and cities have lost slightly in the number and share of Employment Size B plants, while towns and rural areas have gained slightly in number, but lost in the share. Employment Size C plants have increased in number by 5, but declined by 12% as a share of total plants. All settlements except metropolitan areas, which recorded no net change, have gained slightly in number, while only towns and rural areas have gained in their share of Employment Size C plants.

In this Product Group there are proportionately fewer large plants and a greater number of smaller plants. Metropolitan areas and cities have gained most from the growth of smaller plants. There has not been as great a change in the number of medium and large-sized plants, however, towns and rural areas have gained proportionately more. Nevertheless, the number of large plants is fewer, therefore, a small gain in the number of plants shows as a greater proportional gain. In this Product Group, towns and rural areas have benefited from the location of larger processors, while cities and metropolitan areas have benefited

Location of Product Group 1 Plants by Employment Size for 1975, 1979, 1987 and 1991



Employment Size, A= 0-25employees, B=26-100 employees, C= over 100 employees

Source: Alberta's Agri-processing Industry Directories

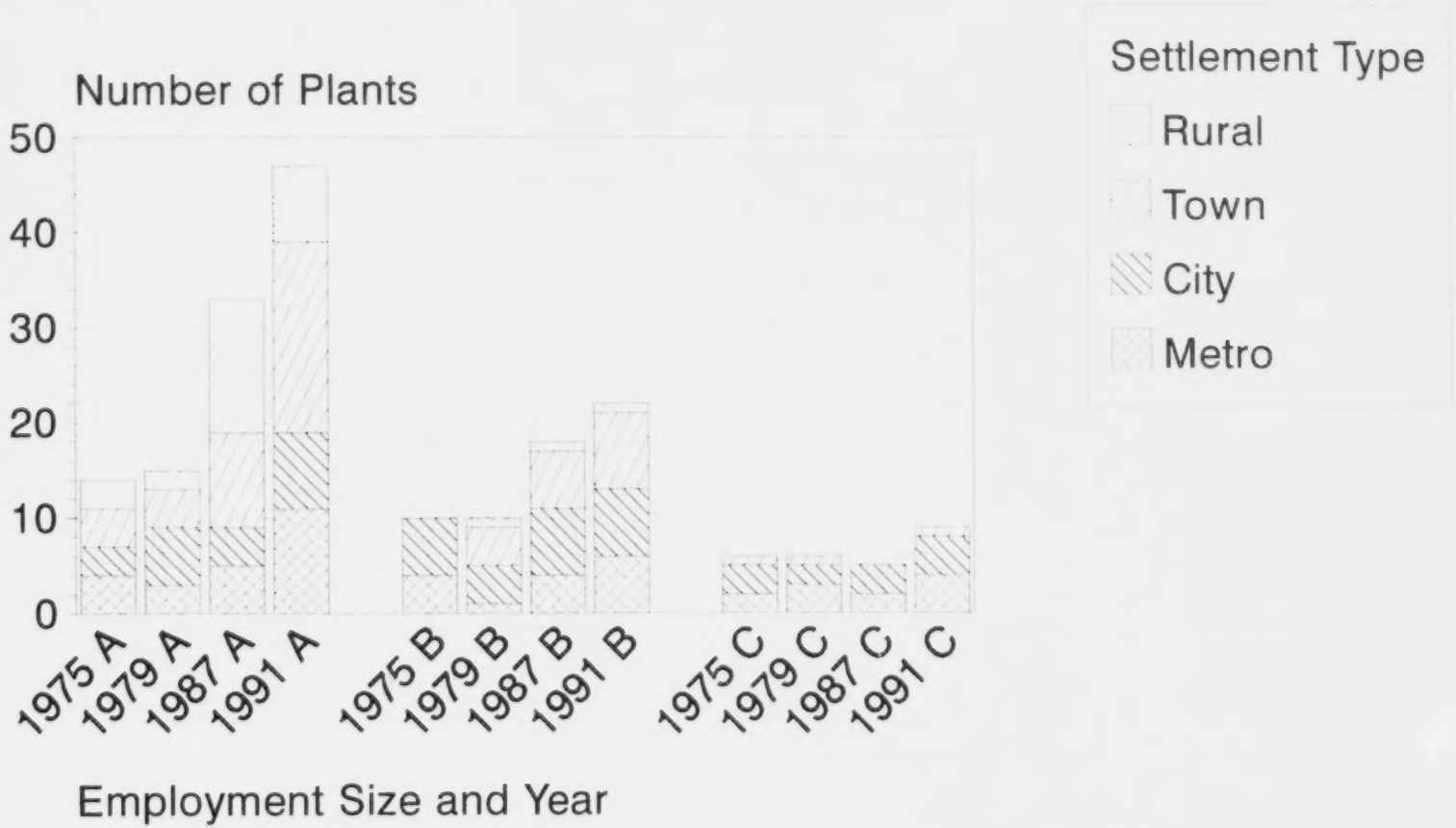
Figure 4.4.

from the larger growth of smaller processors. From 1991 to the time of writing, 5 large meat processing plants[12] have closed (3 were located in metropolitan areas, and 2 were in cities). These recent changes are further evidence of a restructuring in the meat industry, a restructuring of fewer large plants in which location is shifting away from the traditional metropolitan and city locations.

Product Group 2: Fruit & Vegetables, Grains, Oilseeds and Special Crops

Since 1975, the number of Product Group 2 plants has increased for all 3 Employment Sizes. Employment Size A plants account for the greatest increase, 33 plants in total and by 13% as a share, of all plants in this group. All four Settlement Types have shown increases in Employment Size A plants, with towns gaining most, followed by metropolitan areas, cities and rural areas. As a share of total plants in this group, metropolitan areas and cities gained 12% and 17% respectively, while towns and rural areas each lost 11%. The number of Employment Size B plants in each Settlement Type has also increased. However, as a share of all plants in this Product Group, Employment Size B plants have declined by 5%. Towns gained 8 Employment Size B plants, compared to 2 for metropolitan areas, and 1 for cities and rural areas. Towns also gained most in increasing the proportion of its plants in Employment Size B by 28%. Rural areas gained slightly, while metropolitan areas and cities lost 11% and 13% of their share of Employment Size B plants. Employment Size C plants increased by 3 which represents a relative decline of 8% in the number of plants of this size. Metropolitan areas and cities gained these plants, while there has been no change for towns and rural areas (Figure 4.5, Table G4.5).

Location of Product Group 2 Plants by Employment Size for 1975, 1979, 1987 and 1991



Employment Size, A= 0-25employees, B=26-100 employees, C= over 100 employees

Source: Alberta's Agri-processing Industry Directories

Figure 4.5.

This Product Group has shown significant growth in the number of plants for all three Employment Sizes. Towns gained most in this growth, particularly in the total number of Employment Size A and B plants. Metropolitan areas and cities gained in the smaller Employment Size A plants, and while increasing their number of Employment Size B plants, did not do so proportionately to towns and rural areas. Metropolitan areas and cities also gained some larger Employment Size C plants, but this represented a slight loss in the share of all plants in these Settlement Types. Rural areas have had a small share in the number of plants in this Product Group and that has not changed. The decline in the number of plants in rural areas in the 1987 to 1991 period is also evident here. Towns exhibit strong growth in this group to an extent that indicates a shift in location from an even distribution of plants, to a situation where towns dominate the locational distribution.

Product Group 3: Dairy and Honey

In this Product Group of dairy and honey processors, there has been little overall change despite fluctuations in interim years. The total number of Employment Size A plants has increased by 5, representing a 4% increase in the total share of plants. Metropolitan areas, cities, and rural areas have gained 5, 3 and 3 plants respectively, while towns have lost 6 plants from 1975 to 1991. As a share of total plants in that Settlement Type, this increase represents an increase of 23% and 22% respectively for metropolitan areas and cities. Plants of Employment Size B show no overall change in plant numbers, despite some fluctuations in intervening years. However, metropolitan areas show an increase of 2 plants,

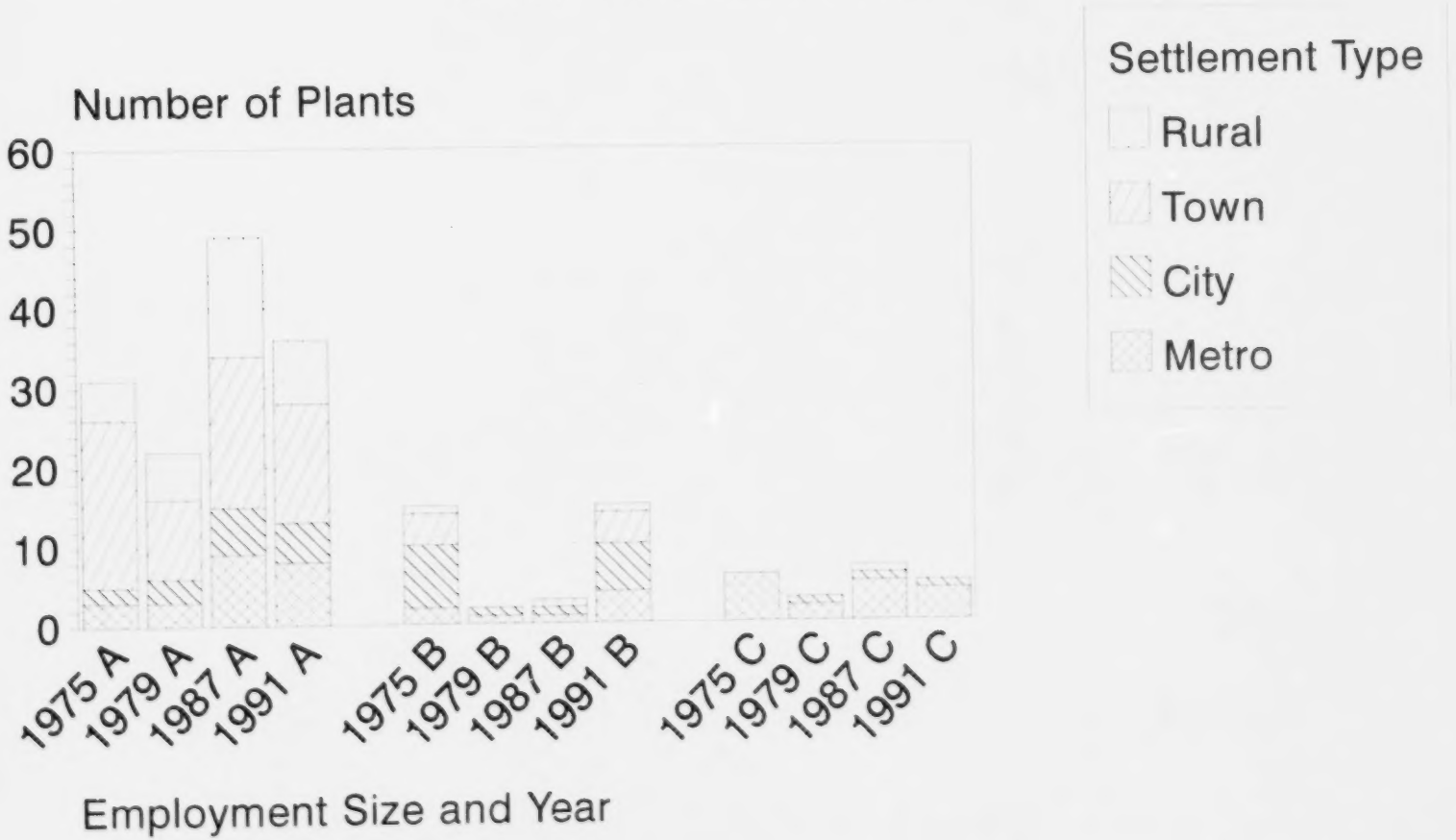
while cities show a decline of 2. The other settlements show no change. Employment Size C plants exhibit a net loss of 1 plant, metropolitan areas lose 2, and cities gain 1 (Figure 4.6, Table G4.6).

Dairy and honey processing plants employing 1 to 25 people have increased in number over the study period, with metropolitan areas and cities increasing their share of these plants. Rural areas also gained some smaller plants, while towns lost. As referred to in the previous section, this data obscures the trend of restructuring in the dairy industry because the increase in the number of honey producers counteracts the decline of dairy plants in towns and rural areas. Child (1984) noted that restructuring had been ongoing in the dairy industry for a number of decades. Between 1966 and 1983, the number of milk processing and ice cream manufacturing plants in Alberta declined from 23 to 17. The restructuring is also evident in the 1987 to 1991 period with a decline in the number of smaller employers and an increase in medium-sized employers. The number of larger employing processors in this Product Group show little change. Cities gain slightly at the expense of metropolitan areas, and towns and rural areas remain unchanged. In this Product Group there is a definite shift away from town and rural locations for dairy plants that has, to some degree, been counterbalanced by a growth in honey processing.

Product Group 4: Animal Feeds, Forage and Pet Foods

This Product Group has experienced net growth in the number of plants from 1975 to 1991, however, most of this growth is concentrated in Employment Size A plants (Figure 4.7, Table G4.7). The number of Employment Size A plants

Location of Product Group 3 Plants by Employment Size for 1975, 1979, 1987 and 1991

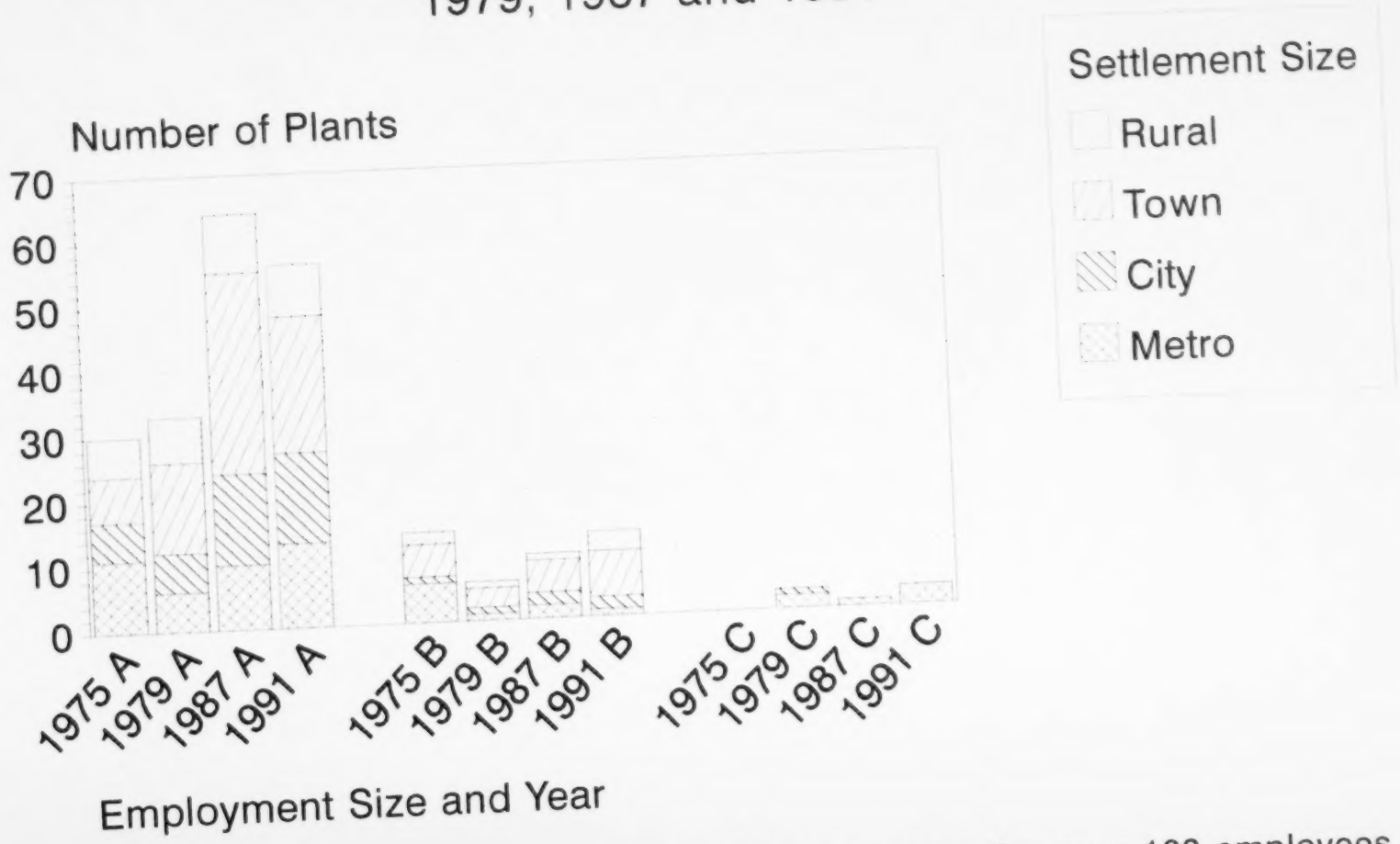


Employment Size, A= 0-25employees, B=26-100 employees, C= over 100 employees

Source: Alberta's Agri-processing Industry Directories

Figure 4.6.

Location of Product Group 4 Plants by Employment Size for 1975, 1979, 1987 and 1991



Employment Size, A= 0-25employees, B=26-100 employees, C= over 100 employees

Source: Alberta's Agri-processing Industry Directories

Figure 4.7.

reached a peak of 64 in 1987 and has since declined to 56. As a share of total plants these smaller employers have increased from 68% of total Product Group, 3 plants in 1975, to 78% in 1991. The most significant growth has been in cities and towns, while metropolitan areas and rural areas have only experienced minor growth. Towns have benefited most in increasing its share of total plants by 14%, compared to 11% for metropolitan areas, and 2% for cities and rural areas. Employment Size B plants have declined by 1 in the study period, with metropolitan areas losing 5 of its initial 6 plants, as other settlements gained slightly. As a share of its total plants, metropolitan areas also lost, as did towns, while the other settlements only varied slightly. Employment Size C plants (there were none recorded in 1975), have grown by 1991 to 3 in metropolitan areas.

In this feeds Product Group the total number of plants has increased; particularly, in plants employing 1 to 25 employees and to a lesser extent in those employing more than 100 employees. Cities and towns have gained most of the growth of the smaller plants, while rural and metropolitan areas have only gained slightly. Again, as in other Product Groups, there is a decline in number of rural plants in the 1987 to 1991 period. When the recent growth in pet food processors is considered[8], there has been a loss for metropolitan areas of smaller plants of the other industries in this Product Group. Metropolitan areas have exclusively gained from the growth in the number of plants employing more than 100 people. This may be linked to this Settlement Type's loss of plants in the 26 to 100 employment range. Overall, growth in this group has increased the number of town, city and metropolitan locations. The increase for rural areas has been small.

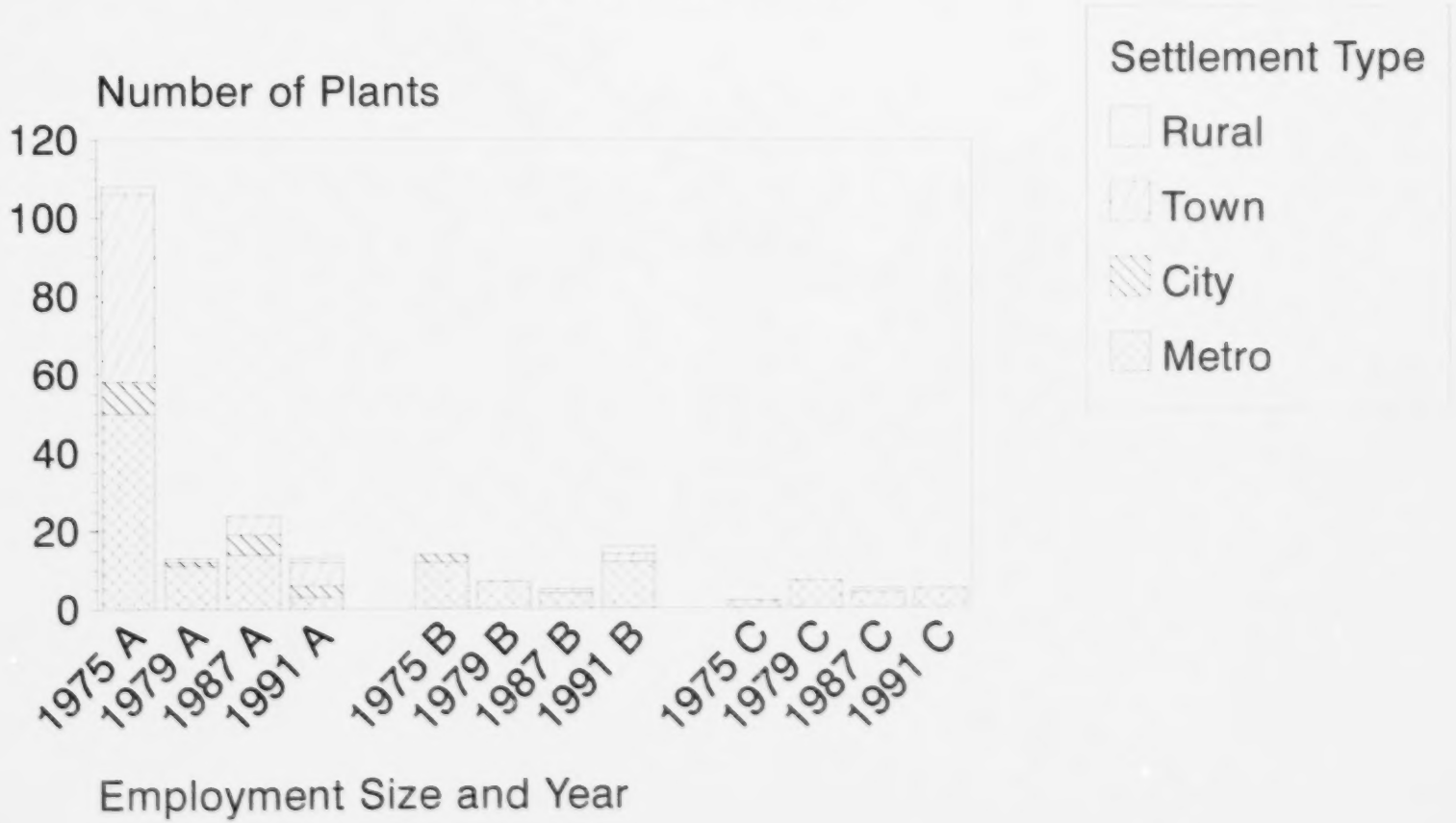
Although, the number of rural plants has not declined, the greater growth in the other Settlement Types reduces the relative share of rural locations.

Product Group 5: Bakeries, Confectionary and Snack Foods

This Product Group exhibits a dramatic decline in total plant numbers (Figure 4.8, Table G4.8). This is most pronounced in Employment Size A, with a total decline of 87 plants, which represents a decline of 46% for Employment Size A plants. However, the data for Employment Size A plants for 1975 cannot be compared with those of other years because of the change in the criteria for recording bakeries[4]. Therefore, the analysis of Employment Size A plants will concentrate on changes between 1979 and 1991. There has been some growth in this Product Group within all Settlement Types, with the metropolitan areas benefiting. Metropolitan areas have experienced a decline in number of Employment Size A plants and a growth in Employment Size B and C plants. Cities experienced a small growth of Employment Size A plants, as did towns and rural areas. Towns and rural areas also increased the number of Employment Size B plants by 2 each. Metropolitan areas are the only Settlement Type with Employment Size C plants and from 1979 to 1991, the number increased by 2. Considering the growth in the number of confectionary and snack food plants[9], there has been a greater decline in the number of bakeries, particularly in metropolitan areas and towns, than is evident from the data.

In this Product Group, there is evidence of considerable restructuring in the bakery industry, and growth in the confectionary and snack food industries. In the bakery sector, a decline in the number of smaller plants in metropolitan areas

Location of Product Group 5 by Employment Size for 1975, 1979, 1987 and 1991



Employment Size, A= 0-25employees, B=26-100 employees, C= over 100 employees

Source: Alberta's Agri-processing Industry Directories

Figure 4.8.

and towns has given way to a few larger plants in these Settlement Types. Cities and rural areas have had a small share of the number of this Product Group's plants and in the study period experienced slight growth. The net result in this Product Group has been restructuring for metropolitan areas, growth for towns, and slight growth for cities and rural areas. Towns, cities and rural areas have made inroads into the metropolitan areas' dominance of this Product Group.

Product Group 6: Specialty Foods, Pasta and Miscellaneous

This is a relatively new Product Group growing from 14 plants in total in 1975, to 53 by 1991 (Figure 4.9, Table G4.9). Most of these processors are located in metropolitan areas and employ 1 to 25 employees. The number of Employment Size A plants has increased by 35, with most of this increase occurring since 1979. Metropolitan areas gained 28, with cities, towns and rural areas gaining 4, 2 and 1 respectively. Employment Size B plants increased by 5 (from 2 to 7); the increase is spread among the Settlement Types, except for cities which lost 1 plant. There are only 3 Employment Size C plants in all, and growth here has gone to cities and towns.

This fast-growing Product Group is dominated by small processors located in metropolitan areas. This emphasis became more pronounced by 1991, however, some of the larger processors are located in the other Settlement Types.

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To sum up the trends of plant location by Employment Size, there has been an increase in the number of all three Employment Sizes. The greatest increase has been in the number of plants employing 1 to 25 employees.

Location of Product Group 6 by Employment Size for 1975, 1979, 1987 and 1991

Employment Size, A= 0-25employees, B=26-100 employees, C= over 100 employees

Source: Alberta's Agri-processing Industry Directories

Figure 4.9.

Metropolitan areas and cities have benefited to the greatest extent from the growth of this Employment Size. Growth in the number of these plants in meat, fruit & vegetables and specialty Product Groups has been the main source of this trend. Towns and rural areas have also benefited from the growth of smaller processors in the meat, fruit & vegetables and feeds Product Groups, however, not to the same extent as the other Settlement Types. On the other hand, the number of dairy plants declined in towns and rural areas during the study period.

The number of processors employing 26 to 100 employees increased by almost 20% in the study period. Towns, in particular, and rural areas to a lesser extent, benefited from this growth. This trend was evident in all the Product Groups, but in particular in the fruit & vegetables and feeds Product Groups. In contrast, the number of medium-sized processors in metropolitan areas and cities declined, particularly in the meat and feeds Product Groups. The total number of processors employing more than 100 employees had not changed greatly until 1991, when it increased by 38% or 13 plants from the 1987 figure. All Settlement Types gained from the growth, with metropolitan areas and towns gaining most. The meat, bakery, fruit & vegetables and feeds Product Groups were the source of the growth in metropolitan areas, while meat and specialty foods Product Groups provided the increase in the number of these plants for towns. Cities and rural areas gained 1 plant each, so no Settlement Type recorded a net loss of plants employing more than 100 employees.

Questionnaire Locational Responses

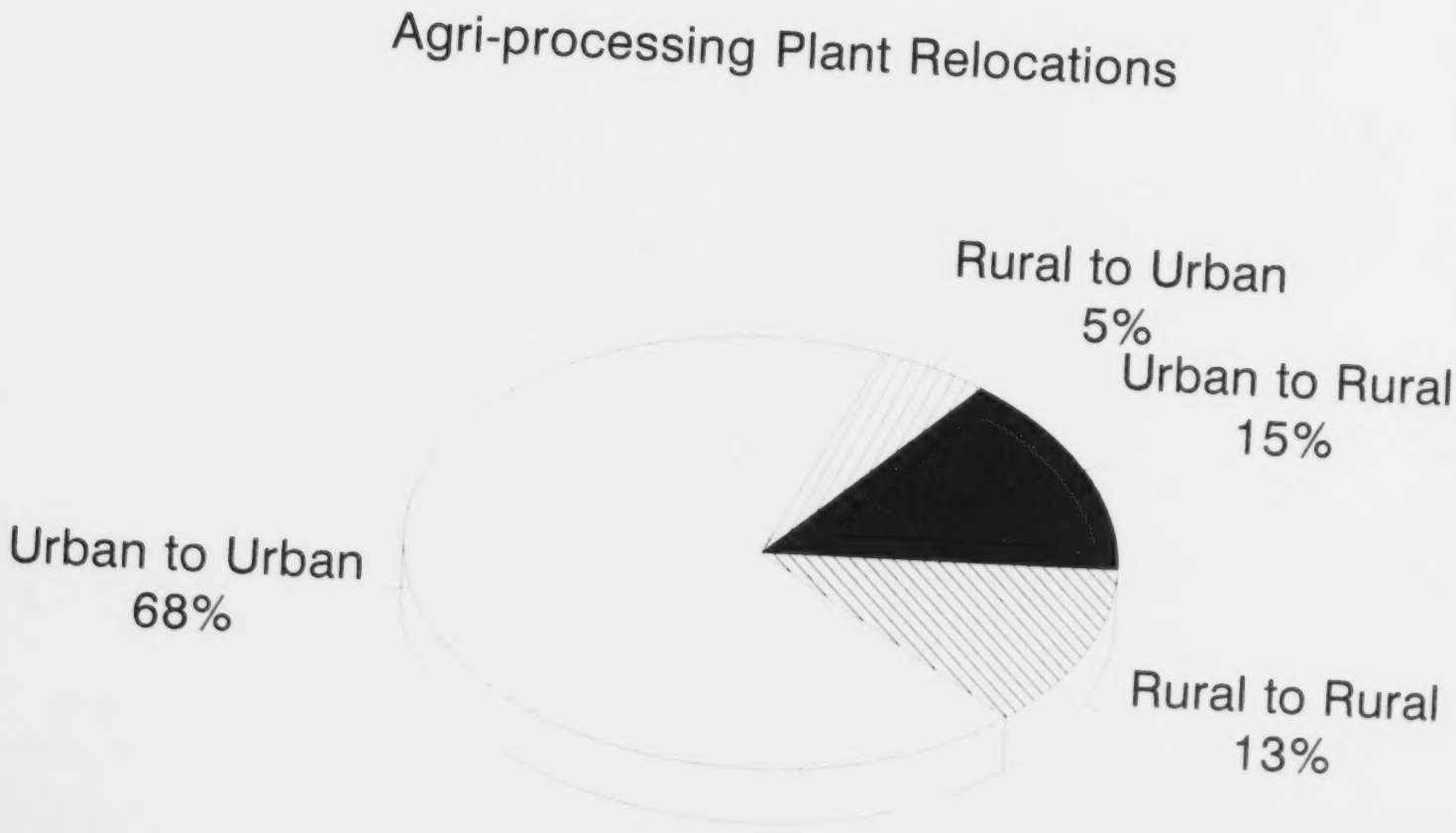
A questionnaire survey of Alberta's agri-processing plants operating in 1991 was undertaken[13] as part of the data collection process for this study. The questionnaire primarily sought information on employment created in government-assisted projects. In addition, questions were included on the reasons plants are in their current location, if and why plants relocated, and anticipated locational changes. The responses to these questions are discussed in this chapter because the responses, in combination with the analysis of locational and employment locational trends, results in a better understanding of locational trends. The questions on the location and locational change were open questions with the respondent asked to insert, in order of importance, the three most important reasons.

From a total survey population of 441 processing plants, 215 usable responses were received. This represented a response rate of 49%, however the response rate to specific questions varied. On the question of reasons for current location, 30 respondents did not answer, 185 recorded a first reason, 142 a second reason, and 92 a third reason (Table G4.10). On the question of relocation, of the 40 plants that indicated a change in location since 1975, 38 recorded a first reason for relocation, 25 a second, and 15 a third (Table G4.11). On the question of anticipated locational changes, 42 recorded a first reason, 29 recorded a second and 19 a third (Table G4.12).

The first question in the questionnaire relating to location dealt with the reasons for the plant's current location (Table G4.10). Four factors dominated the

responses for the most important reason, and these factors were prominent as second and third reasons. Personal/historical ties were the leading reason, closely followed by closeness to raw materials, and access to markets. Low-cost site, while significant with 20 responses as a first reason, was much lower than the three previous factors. Based on the questionnaire, these were the four principal reasons why plants were in their current location. However, closeness to highway/rail and availability of low cost labour were also frequent second and third responses.

The next locational issue was the incidence, type, and reasons for a change in location by agri-processing plants since 1975. Of the respondents, 40 or 19% indicated a change in location. The type of locational change is illustrated in Figure 4.10. The dominant type of relocation was inter urban, accounting for 68% of all relocations. Next was urban-to-rural relocations and rural-to-rural relocations at 15% and 13% respectively, of total relocations. The least frequent type of relocation was rural-to-urban at 5%. Therefore, of those who indicated a change in location, a change from urban-to-rural was 3 times more frequent, than from rural-to-urban. Three factors dominated the reasons cited for relocation. Availability of space is the dominant reason for relocation accounting for 16 out of 38 responses as the most important reason (Table G4.11). This reason for relocation represents a disadvantage of metropolitan or city sites and a force of deglomeration (Smith, 1971). These are followed by access to markets and closeness to raw materials. The same pattern is true for the second and third reasons cited, with these three factors dominating.



Source: Questionnaire Survey

Figure 4.10.

The final locational issue is the reasons for anticipated locational changes (Table G4.12). Of those respondents that specified the type of anticipated locational change, 27 indicated a change to an urban location, while 10 indicated a change to a rural location. Again, availability of space dominates the responses with 13 of the 42 most important reasons, closely followed by access to markets. Low local taxes are the third highest-rated reason. These three factors also are important in the second and third recorded reasons. The exceptions to this pattern are closeness to raw materials and personal/historical ties, which rate highly as second most important reasons, while not being important as a first reason.

In short, personal/historical reasons, access to markets, access to raw materials and low-cost site are the principal reasons agri-processing plants are in their current location. Almost one fifth of the processors that responded, indicated they have changed location since 1975, with most relocating between urban areas. There was also some relocation from urban-to-rural, and within rural areas. The desire for more space and closeness to markets and raw materials were the principal reasons for relocation. Another one fifth of processors that responded anticipate locational changes in the future. Slightly more than 1 in 4 anticipate change to a rural location, while almost 3 out of 4 anticipate change to an urban location. The desire for space, access to markets and low local taxes are the chief reasons for anticipated relocations.

Conclusion

The research question addressed in this chapter is whether there has been a shift in the location of Alberta's agri-processing plants and employment during

the study period. The question about plants is conclusively answered from the data and analysis. The question regarding employment is answered in terms of general locational trends of different plant sizes. However, because of data limitations, an actual quantitative comparison of employment during the study period is not possible.

The conclusion is, there has not been any significant shift in the location of agri-processing plants from rural-to-urban between 1975 and 1991. The share of total plants located in rural areas has increased from 9% to 12%. The combined share of processing plants in metropolitan areas and cities versus towns and rural areas does not reveal any shift in location either. In 1975, the former two Settlement Types had 58% of all plants, and the latter two had 42%. By 1991 there had been no change in these figures. The growth that has taken place in Alberta's agri-processing industry, has benefited all Settlement Types and benefited rural more than any other Settlement Type.

However, within this overall trend, there are variations to note, by Product Groups, spatial pattern, Employment Size and different time periods. Within Product Groups, metropolitan areas gained in all groups, except feeds. Cities and towns gained in the fruit & vegetables and feeds Product Groups, while towns and rural areas lost dairy plants. Rural areas gained in meat and honey and lost dairy plants. However, honey operations tend to be small, therefore, the gains in honey may not make up the employment and other losses in the dairy industry. Spatially, growth tended to concentrate in settlements close to major urban centres. There was also evidence of concentrated regional growth particularly in the case of

southern Alberta. For Employment Size, the greatest growth was in smaller processors located in metropolitan areas and cities. However, in medium-sized employers, towns in particular, and rural areas to a lesser extent, gained. Again, towns gained most in larger employers, with metropolitan areas also gaining.

From 1987 to 1991, a disturbing trend has emerged for towns and rural areas; both Settlement Types have lost a combined total of 6% of the share of total plants. Towns have lost 4% while rural areas lost 2%. The disturbing trend of recent decline in agri-processing plants is reinforced by the trend of urban relocations and anticipated relocations from the questionnaire data. Also, the high rating of access to markets as a locational factor mitigates against town and rural locations, because metropolitan areas and cities are the major market centres. However, countering this, is the strong influence of personal/historical ties and access to the raw materials. Personal/historical ties favour current locations and access to raw materials favour rural, or rural-oriented locations. However, in the case of feedlots and beef-packing plants in Southern Alberta, if the raw material concentrates in a specific region, then regional relocation may be necessary.

A surprising result of the questionnaire responses is the very low rating of labour factors as an influence on location. This is contrary to the findings of the Stabler and Molder (1992) study, and to the literature in general, which credits labour and labour costs as a major locational influence. This may be due to the open question style used in this survey rather than a choice of most likely locational factors used in other studies. However, it may be because the majority

of agri-processing employees in Alberta are unionised and on standard wage rates. Labour costs would therefore, not vary by location.

A complex picture emerges of rural areas gaining plants overall in the study period, while losing some of its share of plants in the 1987 to 1991 period. Within the complexities of new plants emerging, other plants closing and still others relocating, smaller plants emerge more often in city and metropolitan areas, as medium and larger plants gravitate towards town and rural locations. However, these town and rural locations tend to be adjacent to the major metropolitan centres. While rural areas have recently lost numbers of plants, there may not be a loss of employment because rural areas and towns have gained more medium-sized processors than their metropolitan and city counterparts.

Notes

1. The completeness of the directories was discussed with Alberta Agriculture staff involved in their preparation. The staff was certain all major processors were included in the directories. However, smaller and newer processors may have been omitted if they were unaware of their existence. The 1975 directory was considered to be the most complete as it was the first directory compiled and many different sources were used.
2. Employment data were not available for the following number and % (in brackets) of total plants for that year 1975 – 154 (32%), 1979 – 55 (19%), 1987 – 23 (6%), and 1991 – 0 (0%). This was after supplementing directory employment data with Statistics Canada Manufacturing Establishment's (1974-1987) employment data.
3. Staff involved in the preparation of the directories on viewing the directory entries without employment data confirmed the entries should be of Employment Size A. Reinforcing this view, was the fact that the larger processors had been included in the directory with employment data and all the meat plants without employment data in 1975 were Class C abattoirs.
4. After 1975, only wholesale bakeries were included in the directories. The number of bakeries listed in 1975 is, therefore, not comparable with the number listed for 1979, 1987 or 1991.
5. Municipal Affairs guidelines for population of settlement status are 10,000 or more for a city, 1,000 or more for a town, less than 1,000 and containing

at least 75 occupied dwelling units for a village and a community consisting of 5 or more occupied dwellings for a hamlet.

6. The data on plant gains or losses for individual settlements was derived from database tables produced for mapping the plant location changes.
7. In 1975 there were no recorded honey processors in towns and rural areas, however, by 1991 there were 6 honey processors located in towns, and 5 in rural areas.
8. The number of pet food processors has grown from 0 in 1975, to 6 in 1991. In 1991, 4 of these processors were located in metropolitan areas, and 2 in towns. Three of these processors were of Employment Size A, 2 were Employment Size B's, and 1 was Employment Size C.
9. The number of confectionary and snack food plants has increased from 4 in 1975, to 18 in 1991. In 1991, 11 of these were located in metropolitan areas and 5 in towns.
10. The studies are not directly comparable because of the different definition of Settlement Types and the exclusion of bakeries in the Harvest Foods study.
11. There was no Employment Size data available for 35 Product Group 1 plants located in towns, and 15 Product Group 1 plants located in rural areas, in 1975. It is likely the majority of these were Employment Size A (Note 2), hence the understatement of Employment Size A plants for towns and rural areas in 1975.

12. Included in the 1991 Alberta Agricultural Processing Industry Directory but since gone out of business are 4 Canada Packers plants, 2 in Calgary, 1 each in Lethbridge and Red Deer, and Alsask Processors that was located in Edmonton.

13. The questionnaire design, implementation and response is discussed in detail in Chapters 3 and 5.

CHAPTER 5

ANALYSIS OF THE IMPACT OF PUBLIC POLICY

The employment impact of public policy initiatives that were implemented between 1975 and 1991 for the agri-processing industry will be analysed in this chapter. First, the various policy initiatives for this industry from 1975 to 1991 will be reviewed. Then, the participation of respondents in the government programmes, as well as the overall response to the questionnaire survey, will be examined. Next, using the questionnaire survey data, the quantity, location and rural impact of jobs created under the auspices of these initiatives, will be analysed. Based on this analysis, the second research question on the impact of jobs created under the auspices of government programmes in this industry will be addressed.

Alberta Agricultural Processing Assistance

The agri-processing sector in Alberta has been continuously government assisted for the 16 years, from 1975 to 1991. The main focus of the assistance has been grants for capital expenditures on plant modernisation and expansions, new product developments and establishment of new processing facilities. In the later assistance programmes, research and development and feasibility studies were also aided. Initially, in this section, the history and development of the various programmes to assist the agri-processing industry will be outlined. The objectives of the programmes, as well as the criteria for, and the level of assistance, also will be outlined. Evaluation of the completed programmes will be reviewed, including an

analysis of the degree to which funds made available for the programmes have been utilised.

In March 1974, the Federal government signed a General Development Agreement (GDA) with the Provincial government of Alberta, where they agreed to "cooperate in selecting and implementing initiatives for the economic and socio-economic development of Alberta" [Canada-Alberta Subsidiary Agreement on Nutritive Processing Assistance (NPA), 1975]. Out of this GDA, a five-year Subsidiary Agreement on Nutritive Processing Assistance (NPA 1) was signed. The Subsidiary Agreement came into operation in April 1975, and was due to run until September 1980. However its operation was extended to March 1981.

The objectives of the first NPA were:

(a) to strengthen the economic viability of the small rural community; and

(b) to further process in Alberta those nutritive products which have, or may achieve, a competitive position in national or export markets.

Through these objectives, quality of life and net income of rural residents would be increased and rural outmigration to metropolitan centres would be reduced. (Canada-Alberta Subsidiary Agreement on Nutritive Processing Assistance, 1975).

The programme offered grant assistance to food processing establishments that could cover up to 35% of capital expenditures. Establishments located in rural Alberta were targeted, by excluding the metropolitan centres of Calgary and Edmonton from assistance under this programme. Special conditions also applied to other urban centres with populations greater than 25,000. The programme, in which funding was equally split between the Federal and Provincial government,

was implemented jointly by the Alberta Department of Agriculture and the Federal Department of Regional Economic Expansion.

Following the conclusion of NPA 1 in March 1981, a second Nutritive Processing Agreement (NPA 2) was signed in August 1981, to run until March 1985. While its purpose and objectives were the same as the first Agreement, its scope was expanded to include research and development assistance, as well as public information and technical services. The funding of projects was also modified. While, grants for new product expansion remained at a level of up to 35% of capital expenditure, grants for plant expansion or modernisation, were only to a maximum level of 20%. The metropolitan centres of Edmonton and Calgary continued to be excluded from assistance, while other urban centres of over 40,000 could be eligible, only under special conditions.

Subsequent to the expiry of NPA 2, a further Subsidiary Agreement was signed in February 1986. This Subsidiary Agreement, the Agricultural Processing and Marketing Agreement (APMA) arises from the 1984 Economic and Regional Development Agreement (ERDA) between the Alberta Provincial and the Canadian Federal governments. The new Subsidiary Agreement, in line with ERDA policy, reflected regional rather than rural development policy. The objectives of APMA were:

(a) to enhance the competitiveness of the existing agricultural processing industry in Alberta; and

(b) to encourage and facilitate new private sector investment in the agricultural processing industry so as to further process in Alberta

> those agricultural, food, and related products that have the potential for domestic and export growth or import replacement and which will help diversify Alberta's economic base, improve opportunities for productive employment and thereby promote balanced development throughout Alberta. (Canada-Alberta Subsidiary Agreement on Agricultural Processing and Marketing, 1986).

The APMA Subsidiary Agreement consisted of capital assistance, the key element in the programme, as well as non-capital assistance. Capital assistance provided grant assistance for new projects and new-product expansions up to a level of 35% for establishments located outside of Edmonton and Calgary, and to a level of 25% within these two centres. Grants of up 25% of the cost of capital expenditure were provided for modernisation and expansion of establishments outside the above mentioned centres, and to a level of 15% within these two centres. Non-capital assistance was provided for feasibility studies and research and development. This programme included the metropolitan centres of Calgary and Edmonton for the first time. The objectives of the APMA programme diverged from those of the earlier programmes to include enhancing competitiveness and facilitating private sector investment. These objectives which are not directly related to employment or rural development are not addressed in this study.

The assistance programmes provided for the agri-processing industry, have evolved from rural development programmes to a province-wide development programme for the industry, with a slight bias against metropolitan centres. The

incentive to locate in rural areas has been diluted over time, so all urban centres except Calgary and Edmonton, are on a similar level of funding as rural areas. Higher levels of support have been targeted to new-product development and new projects, while modernisation and expansion of existing facilities attract lower levels of support.

Evaluation of Assistance Programmes

There have been three evaluations carried out on the programmes that provided assistance to Alberta's agri-processing industry between 1975 and 1991. An evaluation of NPA 1, which ran from 1975 to 1981, and NPA 2 from 1981 to 1983 were completed by the consulting firm, Woods Gordon. In 1992, an evaluation of the impact of economic development initiatives on the agricultural-processing industry in western Canada was completed by Harvest Foods of Saskatoon. While this study also included other provinces in western Canada, its principal focus was on Alberta and the impact of the various programmes. Neither of the first two evaluations were made public, however, the latter report by Harvest Foods was published. The Harvest Foods report referred to the other two evaluations, therefore, indirectly through their report, the conclusions of the other two evaluations are available.

The latter evaluation focused on the macroimpacts of the programmes, and little attention was paid to the quantity or quality of jobs created, their location, or their impact on rural communities. However, the earlier evaluations of NPA programmes did examine some employment impacts of the programmes and concluded that:

> the NPA Programme is not in itself creating, or is creating relatively few, net new jobs and manufacturing investment. It is in fact supporting economic activities which would at some point in time occur without the NPA. (Harvest Foods, 1992, p. 50)

While the earlier programmes did not create new jobs, the evaluation report argued it was responsible for maintaining hundreds of jobs through modernisation. Also, the NPA contributed to the decentralisation of employment allowing employment in rural areas to grow by 7%, thus keeping pace with provincial growth rates. In addition, the NPA evaluation concluded the programmes had no impact on the decision where to locate as this decision tended to be made on the basis of facilities, inputs, markets, and owner residence. Because of this finding, the report recommended modifying the locational element in the programme. Also, it was recommended that the geography of the programme be monitored as some communities accounted for a large share of the grant dollars. In terms of the impact on rural communities, there was evidence of strong backward linkages with incomes between $36 to $61 million generated from 1975 to 1981 in the communities.

The 1992 study by Harvest Foods focused on macroimpacts of past initiatives for the agri-processing sector. Growth in Alberta's industry was compared with that in other western Canadian provinces. It was concluded that growth in the Alberta agri-processing industry was due to population increase rather than the effect of the assistance programmes. Assistance programmes did help bring forward investment, but did not create investment that would not have taken place anyway. The report concluded, that the programmes did not affect the "go/no go" decision on investment.

In that study, little attention was given to the questions of jobs created, the location of these jobs, and the impact on rural communities. Employment measures were excluded because it was felt employment in food industries has been influenced by factors such as technology and economies of scale. The study did analyse changes in the number and location of plants between 1975 and 1991. However, location was simply classified as urban or rural, urban being defined as Calgary and Edmonton and immediate surrounding communities, with rural including all other communities. Results showed that the number of firms increased both in rural and urban locations. Excluding bakeries, rural firms gained 46 plants, while urban firms gained 52 plants. Special crops, specialty foods, confectionary and fruit & vegetables processing increased their share of total processing in rural areas, while fruit & vegetables, pasta and Specialty foods increased their share in urban areas.

In total, the agri-processing assistance programmes between 1975 and 1991 had a potential funding of $95 million. Only $49.2 million or 52% of this funding was used. This represents 4.6% of all the capital expenditures in the agri-processing sector undertaken in this period. To sum up, the evaluations conclude that the programmes did not create any net new jobs, but brought forward the investment in time. The growth that occurred in the industry was primarily the result of the general population growth in the province. The projects assisted by these programmes did help to consolidate and encourage rural employment and had beneficial economic impacts on rural communities. However, the assistance

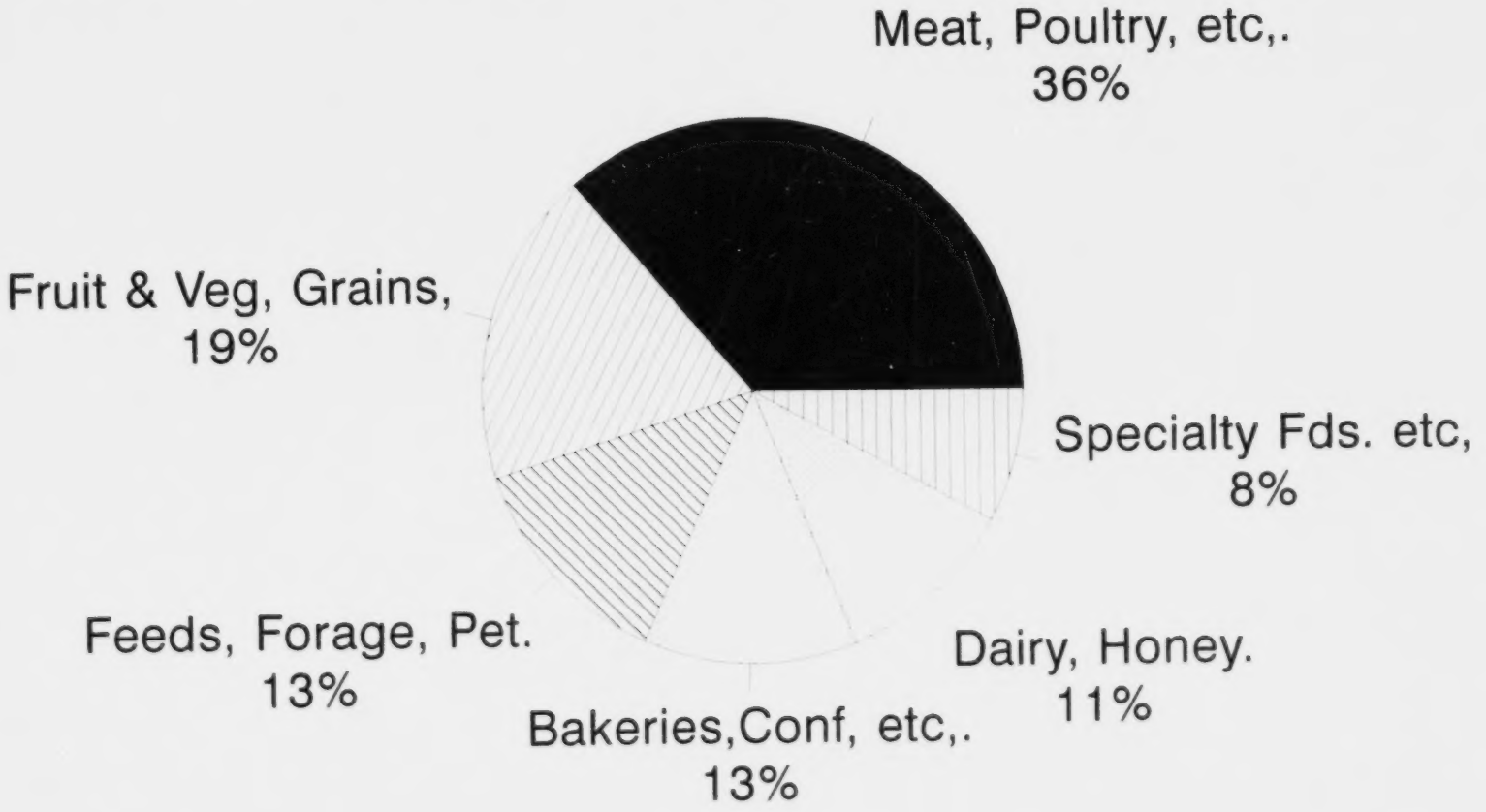
did not influence the location decision. Other factors such as access to raw materials, markets and facilities, as well as personal factors, were more important.

Questionnaire Response

The questionnaire survey of agri-processing plants in Alberta is the data source used to analyse the quantity, location, and impact of jobs created in the government-assisted projects. Before examining these factors, the overall response to the questionnaire will be analysed. In addition, the participation of respondents in the government programmes will be examined for each Product Group. In analysing and interpreting the questionnaire data, two important limitations should be noted. First, some respondents answered questions about projects that were completed up to 17-years ago. Not all these respondents would have had records about these projects, or would have referred to them. There was, therefore, a scope for error in that some respondents used their memory for recalling the details. Second, it is highly probable that some of the processors that participated in these programmes in the past, have since ceased operations, amalgamated, or been taken over by other companies. Since these processors would not have responded to the questionnaire, the participation and jobs created in the government programmes will be understated.

Of the 460 processing plants included in the questionnaire survey, it emerged from responses that 19 of these plants were no longer in operation, thus, the true survey population size was 441. From this population of 441, 217 questionnaires were returned, of which 215 were usable. These usable responses reflect an overall excellent response rate of 49% for a mail survey (Figure 5.1,

Questionnaire Response by Product Group



Source: Questionnaire Survey

Figure 5.1.

Table G5.1). The response rate was highest in Product Groups 1 and 2 at 56% and 53%, respectively. The rate was average for Product Group 3, and below average at 45% for Product Group 5. The rate was also low for Product Group 4 at 43%, and the lowest response rate at 35% was for Product Group 6, a group comprised predominately of smaller, more recently established, urban-based processors.

Not all usable responses have answered all the questions in the questionnaire. Some questions only applied to some plants, such as those to do with relocation and involvement in government assistance programmes. There is, therefore, a lower response rate to these sections. Also, some respondents chose not to answer some questions for their own reasons. The number of responses will be indicated in the analysis, to indicate the level of responses from which trends and inferences are deduced.

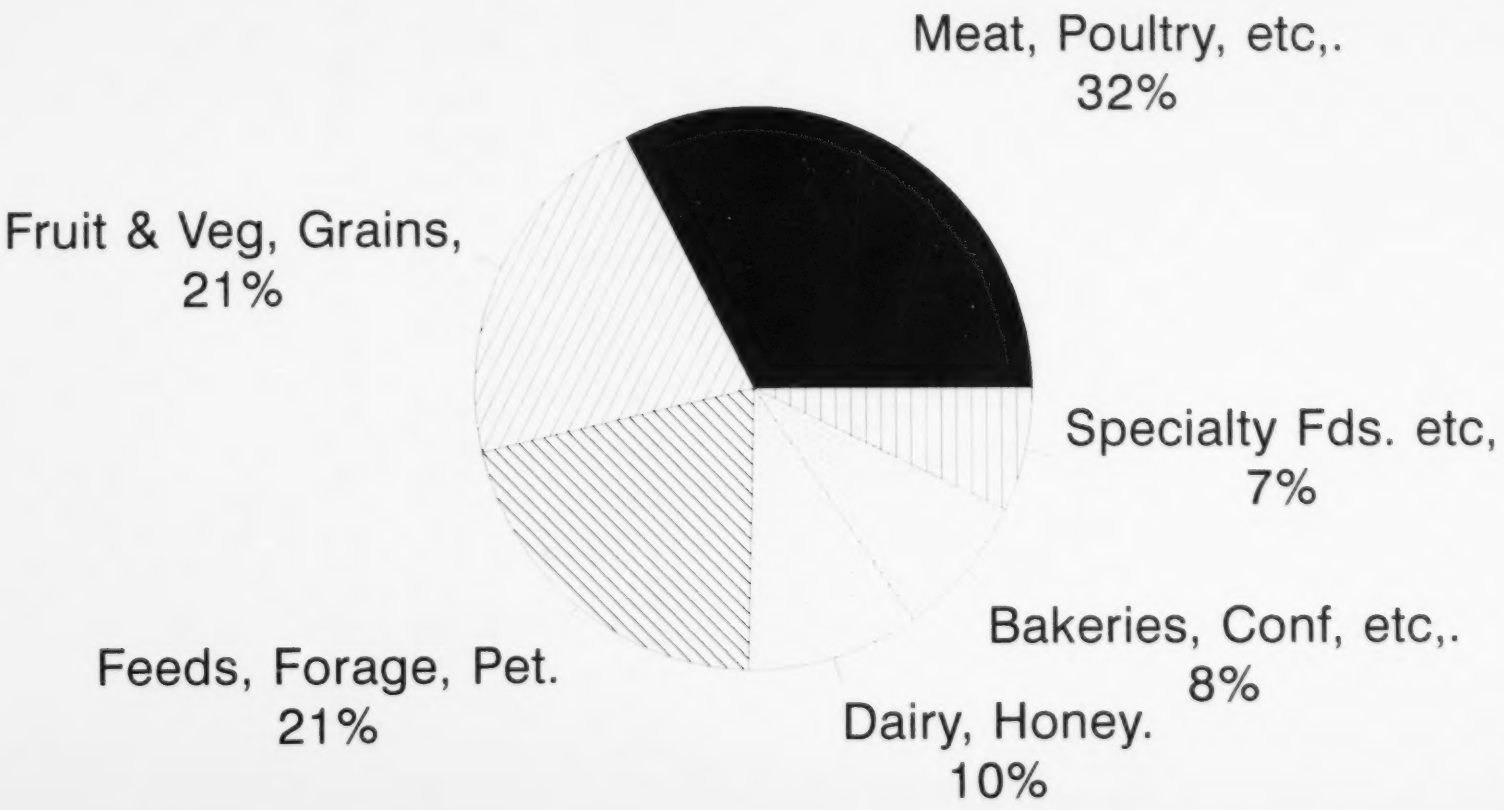
A large majority of the processors that responded were independent companies, 155 or 72%, and 59 or 28% were branches of parent companies. Of the 215 respondents, 96 or 45% have been in operation at their present location since before 1975, and 47 or 22% came into operation between 1975 and 1981. A further 37 or 17% began operations between 1982 and 1985, while 35 or 16% began in the most recent period of 1986 to 1991. Therefore, agri-processors in Alberta are more likely to be independent companies, rather than branch plants, and tend to have been in business at their present location for several years (Table G5.2).

The processors that responded accounted for 8,817 full-time and 1,789 part-time employees, for a total industry wage bill of $M 275.6. The average employment size was 49 which includes 41 full-time and 8 part-time workers. Males outnumbered females by approximately 2 to 1, with an average of 30 males to 14 females. In full-time employment, the average number was 26 males and 11 females, while in part-time employment, the average number was 4 males and 3 females. The average wage bill was $M 1.70 which gives an average salary of $34,693, including full-time and part-time employees (Table G5.2).

Of the 215 processing plants that responded to the questionnaire, 71 or 33% indicated their participation in the government programmes (Table G5.3). More than one-third of these participated in more than one programme. The greatest level of involvement was in APMA for plants in one programme only. This was followed by NPA 2 at 13, and NPA 1 at 9. On examination of the participation within different Product Groups, the meat, poultry Product Group emerges with the highest at 23 plants, followed by fruit & vegetables and the feeds Product Groups at 15 each (Figure 5.2, Table G5.3). Dairy, honey, bakeries, confectionary and specialty Product Groups have low levels of participation. However, on examination of the rate of participation, the feeds Product Group is highest at 52%, followed by the fruit & vegetables Product Group at 38%. The meat, poultry and dairy, honey Product Groups have just below average rate of participation, while bakeries and specialty Product Groups have the lowest rates.

In brief, slightly less than half of agri-processors in Alberta responded to the questionnaire. The response rate within the different Product Groups varied

Respondents Participation in Government Assisted Projects



Source: Questionnaire Survey

Figure 5.2.

from a low of 35%, to a high of 56%. Processors in the meat, poultry, eggs and fish were most likely to respond, followed by fruit & vegetables, grains, and special crops. Least likely to respond were the Specialty food processors, followed by bakeries, confectionary and snack food processors.

Based on this survey, one-third of processors participated in the government-assisted projects, and of these, a large proportion participated in more than one programme. Meat, poultry, egg and fish processors accounted for the largest number of projects, followed by fruit & vegetables, grains, oilseeds and animal feeds, forage and pet foods. The highest rate of participation among the processors that responded to the questionnaire, however, was by the animal feeds Product Group, followed by the fruit & vegetables Product Group. Those least likely to participate were the bakeries, confectionary, snack food Product Group, followed by the specialty foods Product Group.

Programme Importance and Impact on Employment

The importance of the government programmes in allowing the investment to proceed will be analysed in this section. Also, the impact of the government-assisted projects on qualitative aspects of employment will be examined. Then, the quantity and type of employment created will be analysed for each programme as well as for each Product Group.

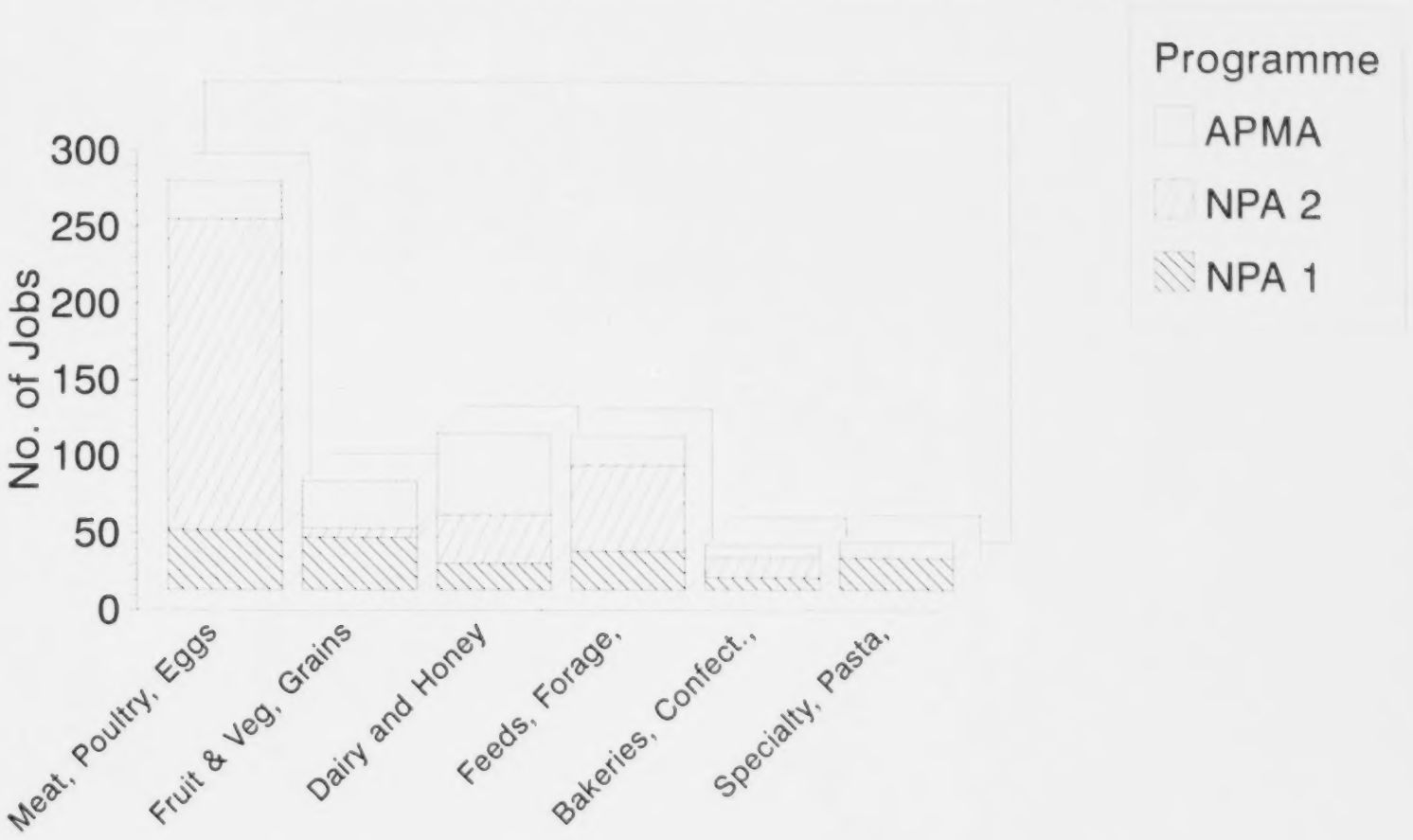
Of the plants that participated in the government programmes, 26 considered the assistance very important in making the investment decision, 31 considered it important, while only 12 considered it not important (Table G5.4). The high level of importance was shared in all Product Groups, except for the

animal feeds Product Group, where one-third of respondents considered the assistance not important. The assistance provided by these programmes was regarded as influential in making the investment decision by processors that participated in NPA 1, NPA 2, and APMA.

Several qualitative indicators point to a positive impact on employment by the government-assisted projects (Table G5.5). Out of 69 responses, the projects resulted in employment creation in 46 cases, and the securing of existing employment in 14 cases. Out of 64 responses on employee-skill levels, 36 reported increased skill levels, while 28 reported no change. In relation to employee productivity levels, 44 plants reported an increase, while 20 reported no change. On value-added per employee, 40 reported an increase, while 21 reported no change. Out of 60 responses on capital invested per employee, 42 reported an increase, while 18 reported no change. The positive impacts are evident across all Product Groups, with the exception of the animal feeds Product Group on employee-skill levels, where there are an equal number of respondents indicating an increase and no change in the employee-productivity levels. There are also exceptions in other Product Groups (such as Product Group 5 on skill levels and value-added), but the number of respondents within the Product Group are too few to infer any patterns. Projects assisted by the government programmes had positive impacts on employment, resulting in the creation of additional employment, increased skill levels, productivity levels, value-added per employee, and capital invested per employee.

Based on responses of 49% of the agri-processing plants in Alberta, a total of 600 jobs were created in government-assisted projects from 1975 to 1991 (Figure 5.3, Table G5.6). Most of these jobs, 496 compared with 65, were production-operative type jobs, as opposed to technical, professional or administrative. The greatest amount of job creation occurred in NPA 2 at 310, compared with 146 for APMA, and 144[1] for NPA 1. The proportion of production-operative jobs to professional, technical and administrative jobs has declined in the long term. From a 10:1 ratio in NPA 1, it increased to 11:1 in NPA 2, and decreased to 3:1 for APMA, giving an overall ratio of 7:1 for the three programmes.

Within the six Product Groups, the meat, poultry, eggs and fish Product Group dominated the jobs total with 267. Next, came the dairy honey and feeds Product Groups with 102 and 100 jobs respectively, followed by fruit and vegetables Product Group with 71 jobs. The bakeries, confectionary and specialty foods Product Groups accounted for the smallest number of jobs created with 31 and 29 respectively. There was a variation on the relative proportion of jobs created in the different programmes within some Product Groups. For three Product Groups, a large share of employment was created under one of the programmes. Under NPA 2, 203 out of 267 jobs were created in the meat, poultry, eggs and fish Product Group, while only 6 jobs were created in fruit and vegetables Product Group, and none in the specialty foods Product Group. Also, a large share, 56 out of 100, of feeds Product Group jobs were created in NPA 2, and a large share, 53 out of 102, of dairy honey Product Group jobs were created in APMA.



Source: Questionnaire Survey

Figure 5.3.

The trends of certain Product Groups dominating participation in the programmes is reinforced by similar trends from data on the projects, and offers made under the different government programmes[2] (Table G5.7). Again, in this data, the meat industry emerges with the largest proportion of projects and of offers made, closely followed by the feeds industry. However, the large proportion of data included under miscellaneous, particularly in APMA makes it difficult to be conclusive about trends in this programme.

In short, establishments that participated in the government-assisted projects considered them important in the decision to make the investment. The projects had positive impacts on employment, resulting in job creation, increased skill and productivity levels, and higher levels of value-added and capital invested per employee. Respondents in all Product Groups, except for animal feeds, agreed with these findings. Based on the responses of 49% of currently operating agri-processors in Alberta, 600 jobs were created in these government-assisted projects.

Most of the jobs were production operative, but the trend was for an increasing proportion of the jobs to be professional, technical or administrative in nature. The meat, poultry, eggs and fish Product Group dominated job creation and of the 267 jobs created in this group, 203 were created during NPA 2. The Product Groups with the next largest shares of the new jobs were dairy, honey and animal feeds, forage and pet foods. In the former Product Group, a large share of the jobs were created during APMA, while in the latter Product Group, a large share were created during NPA 2. Proportionately few jobs were created in the

bakery, confectionary, snack food Product Group and the specialty foods Product Group.

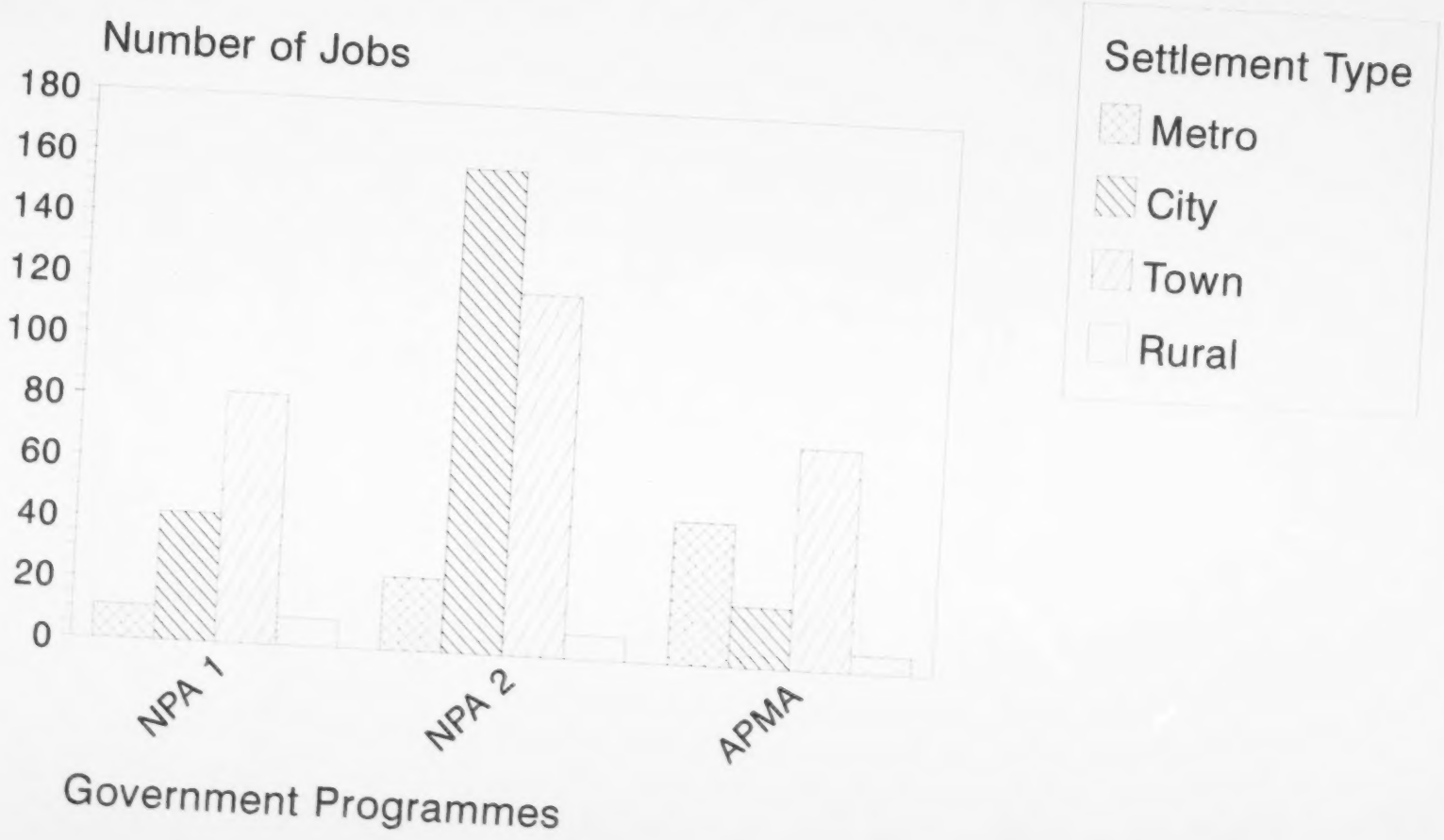
Location and Residence of Employment Created

In this section, the location of employment created will be analysed. First, the employment created will be classified according to the location of the plant using the Settlement Type classification employed in the previous chapter. Then, the employment created will be mapped to analyse spatial patterns. Last, the employment created will be analysed in terms of the residence of the employees.

Employment created in the government-assisted projects is predominately located in cities and towns (Figure 5.4, Table G5.8). Towns gained 274 jobs or 45% of all employment created, while cities gained 221 jobs or 37% of employment created. Rural areas only gained 23 jobs in total, or 4% of all jobs created. In metropolitan areas, the questionnaire responses indicated 11 jobs in NPA 1 and 24 jobs in NPA 2 were created, even though this Settlement Type was excluded from the programmes[3].

The pattern of towns and cities dominating the location of job creation, is true for all the programmes except APMA. In NPA 1, 57% of employment was located in towns compared with 29% for cities, with only 6% for rural areas, and 8% for metropolitan areas. In the NPA 2 programme, cities dominated with 51% of employment, followed by towns with 38%, and metropolitan areas and rural areas with 8% and 3% respectively. In the final APMA programme, 50% of jobs created were located in towns, while 32% were in metropolitan areas, with 14% in cities, and 4% in rural areas.

Location of Jobs Created in Government Assisted Projects



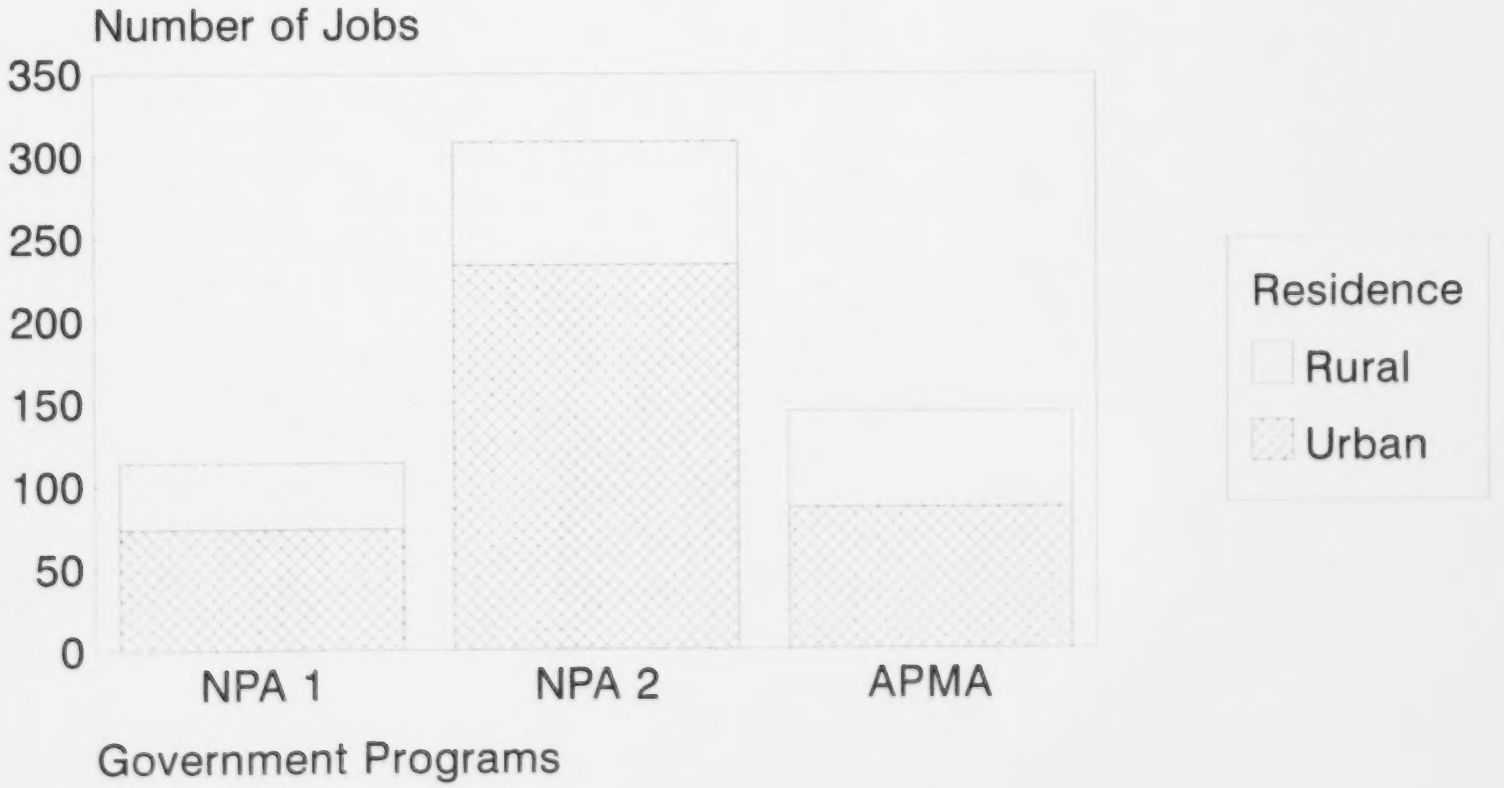
Source: Questionnaire Survey

Figure 5.4.

Of the employment created in the government-assisted projects, 69% of the employees were urban[4] and 31% were rural[5] residents (Figure 5.5, Table G5.9). This compares to an average for all the questionnaire respondents of 68% urban residents, and 31% rural residents. Urban residents dominated all of the programmes, accounting for 76% of jobs created in NPA 2, 65% in NPA 1, and 59% in APMA. The proportion of rural residents was highest in APMA at 41%, compared with 35% in NPA 1, and 24% in NPA 2. In contrast to just 4% of employment created being located in rural areas, 31% of the employees in the created jobs are rural residents. Rural residents in these data excluded towns. Therefore, the actual proportion of rural residents, if towns were included, would be greater. Farmers also represent an average of 9% of the agri-processing workforce, based on 86 questionnaire responses. This compares to 9.2% in the Stabler and Molder (1992) study on rural manufacturing in Saskatchewan.

The spatial pattern of the location of jobs created in the government-assisted projects is illustrated in Map 5.1. In this Map, Settlement Type 1.00 to 1.75 corresponds to metropolitan areas, 1.75 to 2.50 to cities, 2.50 to 3.25 to towns, and 3.25+ to rural areas. The greatest concentration of jobs created was an area including Red Deer (and to the south of the city), towards Calgary. There were four other concentrations of jobs created: Edmonton and some surrounding communities, Lethbridge, Brooks and some surrounding communities, and a small number of jobs in the Peace River area. There was also a small concentration of jobs created in east-central Alberta in and around Wainwright. The major proportion of jobs created were in towns and cities within the urban field of major

Employee Residence of Jobs Created in Government Assisted Projects



Source: Questionnaire Survey

Figure 5.5.

Location of Government Assisted Job Creation in Alberta 1975-1991

Map 5.1

metropolitan centres, particularly along the Edmonton Calgary corridor. The exceptions were the jobs in the Peace River and Wainwright areas. It is also noteworthy that, based on this survey, no government-assisted jobs were created in the west-central region of the province.

The largest segment of the employment created has been located in the towns of Alberta, with an almost as large a segment located in Alberta's cities. Rural areas benefited very slightly from job creation, with only 4% of new jobs assisted by these programmes locating in rural areas. In the final APMA programme, where metropolitan areas were included for the first time, these large cities gained almost one-third of the assisted employment. However, though rural areas are not benefiting directly from rural plant locations, they are benefiting from rural residents employed in, and commuting to, jobs created largely in urban areas by the programmes. The location of jobs created is concentrated relatively close to major metropolitan centres in cities and towns, except for the Peace River and Wainwright areas. Strong concentrations around Red Deer, Calgary, Edmonton and Lethbridge accounted for the large majority of the jobs created.

Local Impacts

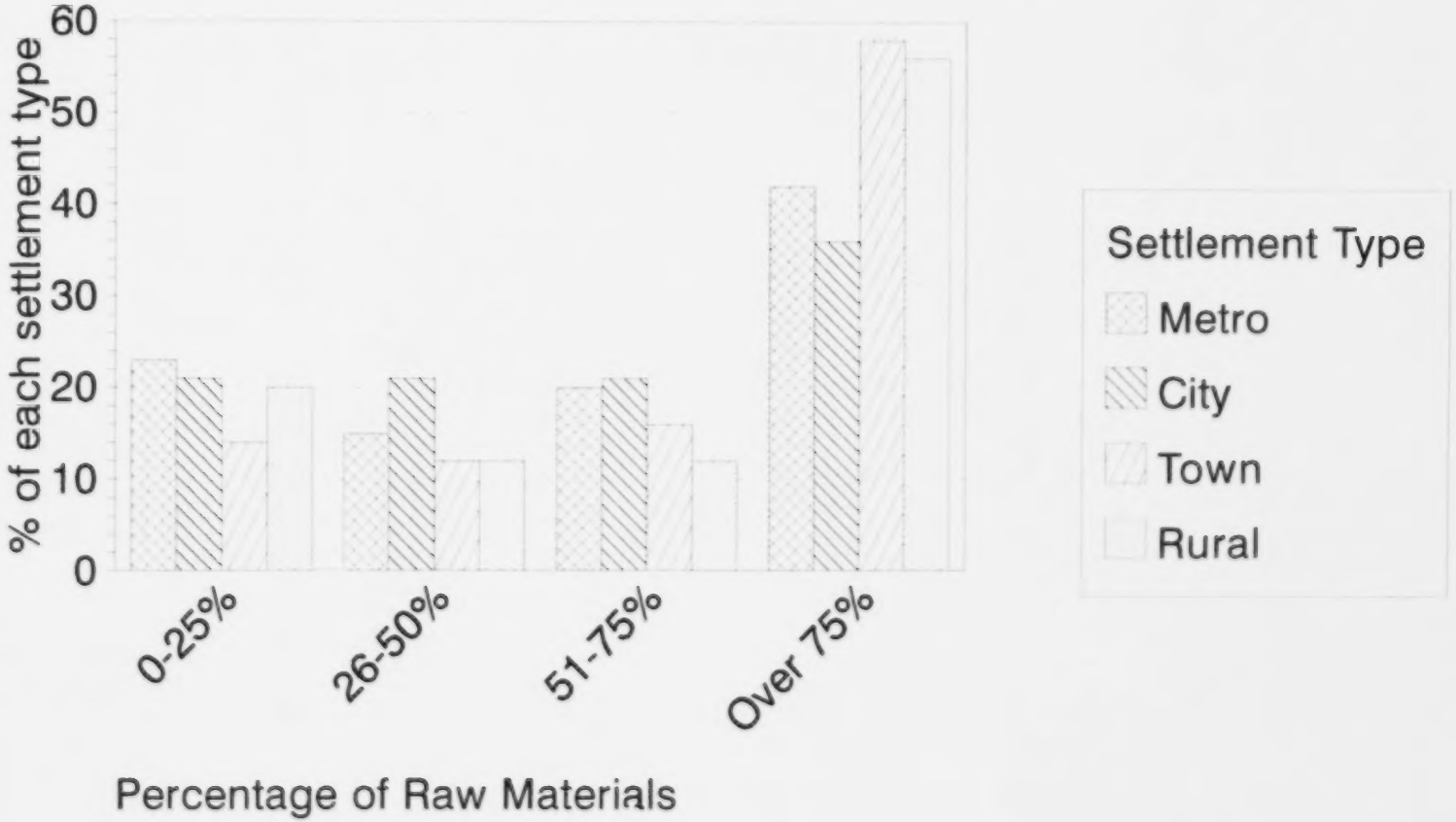
In this section, the local impacts of agri-processing plants is examined. This is achieved through an analysis by Settlement Type of the level of raw materials purchased locally, the commuting distances of employees, and the degree of difficulty experienced in finding suitably qualified labour. The analysis of these factors assists in understanding of how agri-processing plants have differing impacts depending on their location.

The levels of raw materials purchased locally was greater for plants located in towns and rural areas than for those in cities and metropolitan areas (Figure 5.6, Table G5.10). This is evident in the percentage of plants that purchased more than 75% of their raw materials locally. For metropolitan areas and cities this amounted to 42% and 36% respectively. In contrast, for towns and rural areas the percentages were 58% and 56% respectively. Metropolitan areas and cities had higher percentages of plants purchasing raw materials locally in the 0-25% and 26-50% categories, compared to towns and rural areas. This analysis shows that agri-processing plants located in rural areas and towns have a greater local impact, because more of the raw materials required are purchased locally.

Processing plants located in rural areas experienced the greatest difficulty in finding qualified and skilled labour locally (Figure 5.7, Table G5.11). The largest proportion of plants in all Settlement Types, except rural, experienced some difficulty. For those experiencing no difficulty, the rural share was followed by metropolitan areas experiencing no difficulty. Cities followed by metropolitan areas experienced the largest share of considerable difficulty. In the category of having experienced great difficulty, the relative share increases regularly from metropolitan to rural Settlement Type.

Because of the greater difficulty experienced by town and rural processors in finding qualified, skilled staff, a greater percentage of employees commuting longer distances would be expected in these Settlement Types. However, the analysis does not fully bear this out. The percentage of employees commuting various distances in each of the Settlement Types is shown on Table G5.12. For

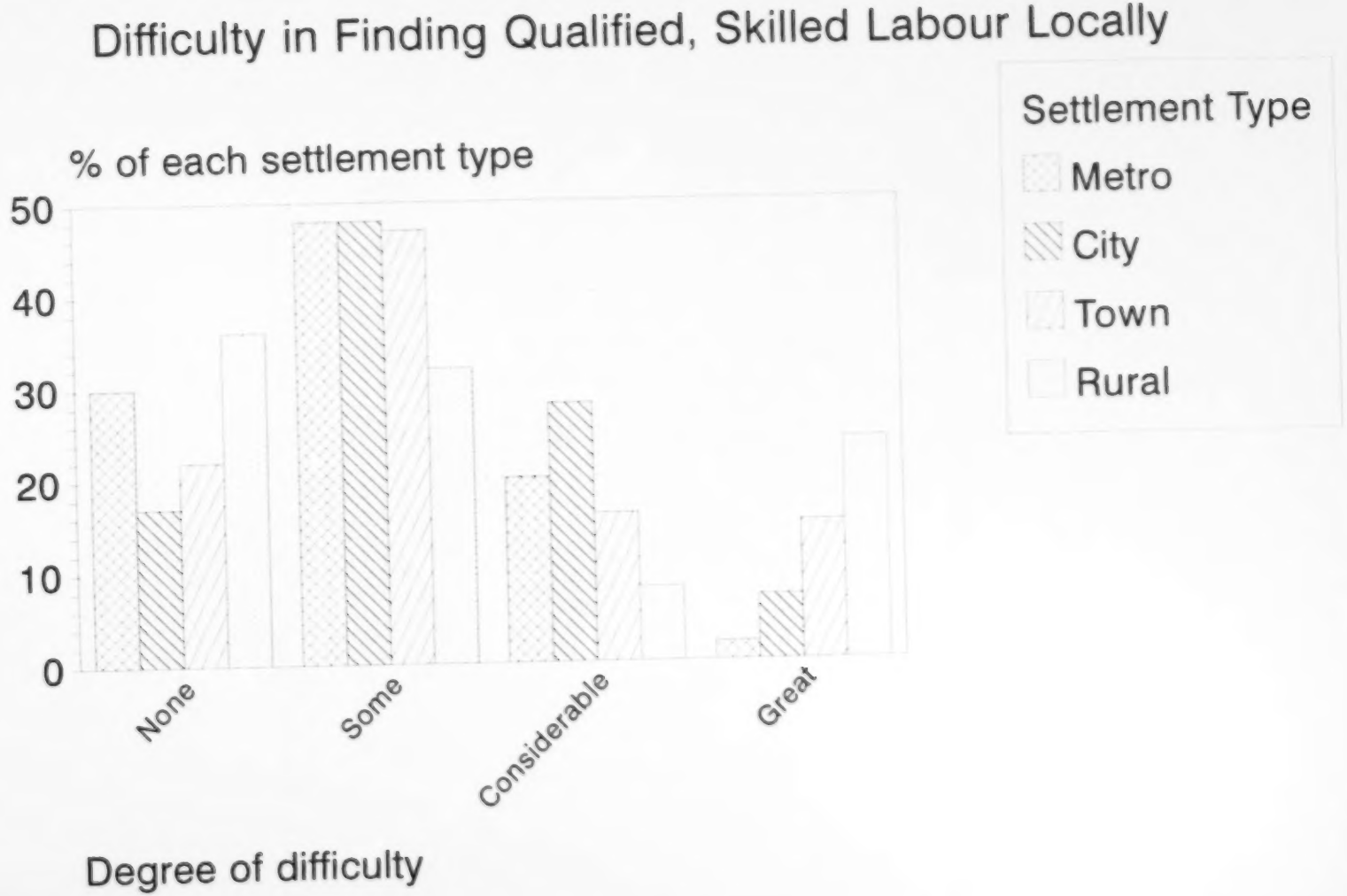
Level of Raw Materials Purchased Locally*



*within 100Km of the plant

Source: Questionnaire Survey

Figure 5.6.



Source: Questionnaire Survey

Figure 5.7.

all Settlement Types, 12% of employees commute more than 26 km, with only 3% commuting more than 50 km. However, there was some variation within the different Settlement Types. In metropolitan areas, 11% commute more than 26 km, with only 2% commuting more than 50 km; whereas, in cities 17% commute more than 26 km, and 4% commute more than 50 km. Towns and rural areas both have similar results with 12% commuting more than 26 km, and 4% commuting more than 50 km each. As might be expected, employees in metropolitan areas have shorter commutes. Yet, contrary to what might be expected, city employees have longer commutes than those in town and rural areas. Compared to Stabler and Molders' (1992) analysis of one-way commutes for rural manufacturing in Saskatchewan, a smaller proportion of Alberta agri-processing employees commute more than 50 km. In the Saskatchewan study, almost 7% have commutes of more than 50 km, this compares to 3% for this study for all Settlement Types, and 4% for rural areas.

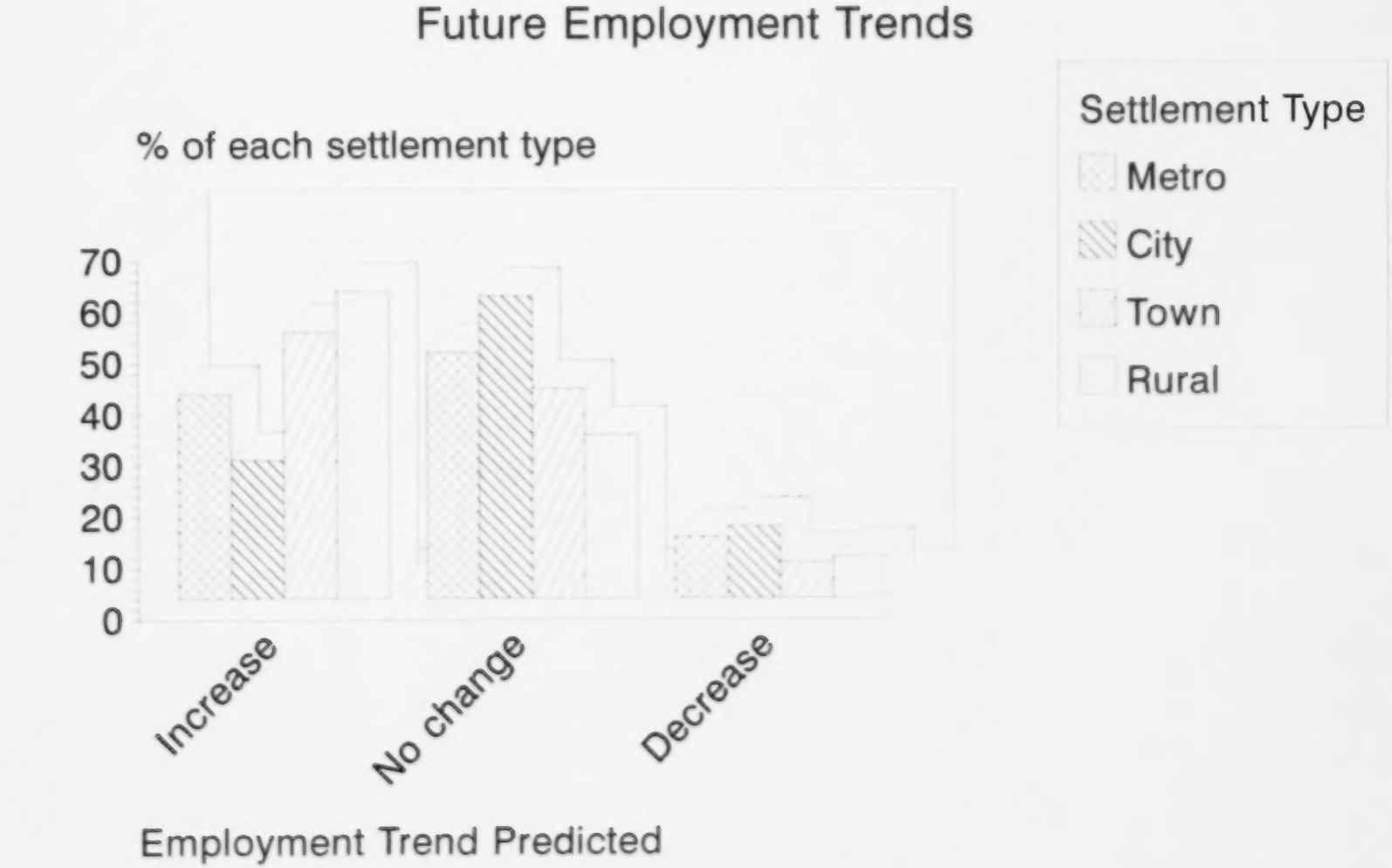
Agri-processing plants located in towns and rural areas have a greater local impact than those located in metropolitan and city locations. A greater proportion of raw materials are purchased locally. As the Settlement Type becomes smaller in size, greater difficulty was experienced in finding suitably qualified labour locally. Therefore, relative to the size of the Settlement Type, the plant has a greater employment impact than in a larger Settlement Type. The data on commuting is not conclusive, since suitable labour was more difficult to find locally, longer commuting distances would be expected in towns and rural areas, than in cities and metropolitan areas. While the data showed the lowest level of

longer commutes in metropolitan areas, the highest levels were in cities, and not in towns and rural areas, as expected.

Future Trends

Questions on future employment and location were also included in the questionnaire to gain an insight into how agri-processing management envisaged future trends. On the question of future employment trends anticipated by agri-processing management, of those that responded, 95 or 45% expected an increase, while 95 or 45% also expected no change in employment levels. Only 21 or 10% of those that responded, expected a decrease in employment levels. Analysis of the trends by Settlement Type (Figure 5.8, Table G5.13) revealed management of plants located in towns and rural areas were more optimistic about employment trends than their counterparts in metropolitan areas and cities. A higher percentage of town and rural processors anticipated an increase in employment levels; 60% of rural processors and 52% of town processors anticipated increases, compared to 40% of metropolitan and 27% of city processors. Only 7% of processors located in towns and 8% in rural areas, predicted a decrease in employment levels; whereas, 12% of metropolitan and 14% of city processors predicted a decrease.

The question of anticipated locational changes in the future trends has already been analysed in Chapter 4. From that analysis, it emerged that one-fifth of respondents anticipated a future locational change. More than one-quarter of the relocations were predicted to be to rural locations, while three-quarters were predicted to be to urban locations. The desire for space, access to markets, and



Source: Questionnaire Survey

Figure 5.8.

low local taxes, were the chief reasons for anticipated relocations. If the future labour force and relocation forecasts are accurate, it may be that while rural areas and towns lose plants, they may be left with larger ones employing the same or more workers.

Conclusion

The research question addressed in this chapter, was to examine the employment impacts of the public policy initiatives for the agri-processing industry during the study period? The questionnaire survey results, based on a good response rate clearly illustrate the employment impacts of these policies.

The analysis shows that for those processors which participated in the programmes, the assistance was considered an important factor, and in projects assisted there were positive impacts on employment. Employment was created, the majority of jobs created being production operative, but an increasing proportion of them were skilled and professional as the programmes evolved. Previous evaluations have shown assistance programmes for agri-processing have had little impact on diversification or net new job creation in the industry. In addition, in this study, as well as in previous research, it is evident that location incentives have had little effect as other factors dominate the location decision.

The traditional sectors of the meat, dairy and animal feeds Product Groups dominated in the assisted job creation projects. In contrast, some Product Groups such as Specialty foods and fruit and vegetables, grains, etc., where there have been dramatic growth in the number of plants, have not figured strongly in job creation in these programmes. Towns and cities throughout Alberta gained most

in employment location from the programmes, with metropolitan areas gaining in the APMA programme. While rural areas gained little in employment location, almost one-third of employees in the jobs created were rural residents. The majority of the towns and rural areas where jobs were created, were located close to major metropolitan centres.

Agri-processing plants located in towns and rural areas have a greater local impact in terms of the proportion of raw materials purchased locally. However, they also experience the greatest difficulty in finding suitably qualified staff. Also, as expected, employees in cities, towns, and rural areas tend to commute greater distances than their metropolitan counterparts. In terms of future trends, on the one hand, agri-processing management in towns and rural areas were more optimistic about increases in employment in their plants than city or metropolitan plants. On the other hand, of the one-fifth of processors anticipating a relocation, only 1 in 4 expect it to be to a rural area[5], while 3 out of 4 expect it to be to an urban[4] area.

Notes

1. According to the 1980/1981 Alberta Agriculture Annual Report, 1,121 jobs were created under the NPA 1 programme. Even allowing for the less than 50% response rate in the questionnaire survey, the difficulty of respondents recalling details from programmes up to 17-years past, and the probability that some of the processors who received assistance from NPA 1 no longer exist, there is a large discrepancy between the two figures on jobs created. Later Annual Reports did not contain details of jobs created in subsequent programmes.
2. The Annual Reports published by Alberta Agriculture from 1976 to 1992 detailed by sector the number and amount of offers made to the agri-processing industry under the NPA and APMA programmes (see Table G5.7. for a summary of this data).
3. It must be assumed that the respondents in this case made an error in completing details on jobs created under NPA 1 and NPA 2 because processors located in Settlement Type 1 were excluded from assistance in these two programmes.
4. In the questionnaire, urban was defined as including cities and towns with a population of greater than 1,000.
5. In the questionnaire, rural was defined as including villages, hamlets and rural areas with a population of less than 1,000.

CHAPTER 6

CASE STUDIES OF TWO COMMUNITIES

Having examined locational change and the impact of government policy on employment in the agri-processing industry, the experiences of two local communities with potential for the development of agri-processing related industries will be investigated. An attempt will be made to understand the experience of these communities' development of their agricultural base and agri-processing industry. The communities are Bow Island in southern Alberta and Smoky Lake in central Alberta. Two key questions will be explored in this chapter. First, what are the factors that facilitated, or hindered the development of agri-processing in these two communities? Second, what has been the impact of the development or lack of development of an agri-processing sector on these communities?

To address the first question, the history, physical characteristics and location of the communities of Bow Island and Smoky Lake will be outlined. Then, the evolution of the agricultural base will be discussed with particular emphasis on the development of agri-processing industries. The role of the community and local government and institutions in the developments that have taken place also will be examined. From this analysis and discussion, key factors will be identified which aided or hindered the development and diversification of the agricultural base and the agri-processing industry.

To answer the second question, economic and social indicators of the two communities will be analysed and compared. Analysis of population, income and

employment will be undertaken. An assessment of the impact of development or lack of development will be made based on this data.

The factors of community type and size, agricultural base and experience in developing agri-processing industries influenced the decision to choose the communities of Bow Island and Smoky Lake for this case study. Both are rural communities of similar population size, located in areas with a strong agricultural base and have the potential for development of agri-processing industries. Analysis of the shift in location data revealed that the community of Bow Island had been successful in significantly increasing the number of agri-processing industries, while Smoky Lake had recorded no overall change in the study period. The selection of these two communities, therefore, provided two examples of communities with a similar potential, but a different experience of the development of an agri-processing industry.

Community Background

Historical Background

The early development and growth of the communities of Bow Island and Smoky Lake are similar, with settlement by Europeans stimulating the opening of the areas for homesteading, and the arrival of the railway. Following the initial development of the communities, there was a steady period of growth as the villages developed into towns and service centres, for the surrounding farming communities.

In the case of Bow Island, farmers first came to the area in the early 1900s. A settlement began to form on the railway, resulting in a village in 1910 which

grew, and was declared a town in 1912. While some German and Dutch immigrants settled in this area, the predominant ethnicity of settlers was Anglo-Saxon. During the early years of the World War I, the area experienced several years of crop failures. In the 1930s the Depression hit hard with rock-bottom grain and cattle prices. As a result many settlers left the area. During World War II, with better prices and good crops, some new settlers came to the district (Department of Industry and Development, 1963). In the 1950s irrigated land became available in the locality and the town quickly doubled its population. The area has been associated with some leading developments in irrigation technology, in particular, the pivot sprinkler system. A completely automated irrigation distribution system was installed in 1982 which serves much of the area surrounding Bow Island (Alberta Economic Development and Trade, 1986).

The first settlement in the Smoky Lake area was south of the site of the present town near the North Saskatchewan River. Initially, it was a fort, named Fort Victoria. Later it became a missionary post, then a village formed, called Pakan. Homesteaders of the Smoky Lake area, who came at the turn of the century, were almost exclusively from the Carpathian mountain region of the western Ukraine. They arrived by Red River cart, ox train, or by raft or scow on the North Saskatchewan River from Edmonton. Smoky Lake established its first church in 1904 and post office in 1909. The arrival of the railway in 1919 resulted in the rapid expansion of the community with many new businesses being established. The nearby settlement of Pakan declined, as Smoky Lake became the established central-place for the region. Smoky Lake was incorporated as a village

in 1922, and became a town in 1962. In the intervening decades, there was a steady growth in the town and its population (The County of Smoky Lake, 1967; Smoky Lake and District Cultural and Heritage Society, 1983).

Historically the development of the communities of Bow Island and Smoky Lake are similar to many other rural, prairie communities. The opening of the area for homesteading and the arrival of the railway, were key factors in the communities' early development. However, for Bow Island, the introduction of irrigation was another major stimulus to the growth of the community.

Location and Physical Background

In this section, the location and physical features of the communities of Bow Island and Smoky Lake areas will be outlined. This is important as physical features limit the type of agriculture possible, which in turn places limits on the raw materials available for agri-processing. The communities will be delineated, based on how local people understand the extent and boundaries of their community. The location and size of the communities are important as they can influence the potential for development. Also, when discussing the community, it is important to know exactly what is the extent of the community.

Bow Island is located in southeastern Alberta approximately midway between Medicine Hat and Lethbridge, south of the South Saskatchewan River. It is 322 km southeast of Calgary, and 52 km southwest of Medicine Hat. The community straddles Highway No. 3, and the branch railway line from Medicine Hat to Lethbridge. Therefore, it is a well-connected and accessible location. Smoky Lake is located in central Alberta, 119 km northeast of Edmonton, south

of Highway No. 28, and north of the North Saskatchewan River. It is 93 km west of St. Paul, and the Canadian National Railway line east of Edmonton runs through the town. Compared to Bow Island, Smoky Lake is closer to a metropolitan area, but Bow Island is more centrally located, being almost midway en route between the cities of Medicine Hat and Lethbridge (Alberta Economic Development and Trade, 1986a & b).

The brown soils of the Bow Island area are fertile and the land is level to gently rolling. Moisture is the principal limiting factor on crop production. Bow Island's location gives it one of the longest growing seasons of 190 days, and one of the highest degree days above 5°C in the province. Heat units, that reflect the degree to which the climate has temperatures above the minimum for crop growth, are the highest in the Bow Island area (Alberta Agriculture, 1990). This is important as it allows crops such as beans and corn to be raised in this area, and this is not possible elsewhere.

The soil in the Smoky Lake area varies from black to grey-wooded. The fertile black soil, which averages 12 to 14 inches in depth, covers the south and west areas of the County of Smoky Lake. The poorer soils, which range from dark-brown to grey, occupy the more wooded and lake-covered areas in the north and east of the County. Apart from the northeastern hilly areas, the land is level or gently rolling. The climate in Smoky Lake is harsher than in Bow Island. The seasonal average temperatures are lower, with less frost-free days (71 compared to 125 for Bow Island). As a result, the growing season is shorter at 165 days, compared to 190 days for Bow Island. However, Smoky Lake has the advantage of

higher precipitation than Bow Island. Annual precipitation for Smoky Lake is 35 cm of rain, and 136 cm of snow, compared to 25 cm and 94 cm for Bow Island. Bow Island has more hours of sunshine per year, 2437 hours compared to 2240 for Smoky Lake (Alberta Economic Development and Trade, 1986b; Alberta Agriculture, 1990).

Officially, the Towns of Bow Island and Smoky Lake are separate communities with their own local government of a mayor and town councillors. The areas surrounding the towns are under separate control of the County of Forty Mile in the case of Bow Island, and the County of Smoky Lake in the case of Smoky Lake. As well as being a municipal area in its own right, Smoky Lake is also the base for county administration. Smoky Lake is the main urban centre for the County of Smoky Lake. In the case of the County of Forty Mile, Foremost is the administrative base, while Bow Island is the largest urban centre in the county. This results in the splitting of functions between two urban centres in the county.

De Poplin (1972) defines communities as social and spatial units where people carry on most of their life activities. Individuals do not live their lives completely within official boundaries. Therefore, official boundaries do not reflect the real communities where people live their daily lives. During interviews, respondents were questioned on what they considered to be the extent of the communities. From interviews with local people, an attempt was made to delineate the communities. The local post office, school district and orientation for basic services, were important factors in the delineation of the community.

In the instance of Bow Island, people recognise the community as including the town and the area bounded by Burdett to the west, Seven Persons to the east, Foremost to the south, and for a few kilometres to the north. The boundary to the north and the south seemed to be more vague, this may be due to the lower densities of population in these directions, particularly as one moves away from the town. The town is a linear settlement with an east-west orientation, that is bisected by Highway No. 3 and the railway line. The greater part of the town lies north of these routes, and includes the business and retail centre, as well as the industrial area. The part of town south of the transport routes appears more recently built, as do the services on the highway east of the town. Settlement outside the town is closely related to the availability of irrigated land, with farm residences adjacent to each other at the junctions of quarter-section holdings. The areas south and east of the town are more sparsely settled, compared to the relatively dense settlement near the town and west of the town. Proximity to irrigation seems to be a major influence on the density of the rural settlement (West Edmonton Reprographics, 1990).

The community of Smoky Lake includes the Town of Smoky Lake and the surrounding area, bounded by the North Saskatchewan River to the south, Waskatenau to the west, and Bellis to the east. To the north, the boundary is vague as this area is sparsely populated, due to the wooded and lake-filled terrain. The Town of Smoky Lake is a clustered settlement, lying south and east of Highway No. 28 and northwest of the Canadian National Railway line. Settlement outside the town is more dense south and east of the town, and less so north and

west of the town. Similar to the Bow Island area, farm residences are located adjacent to each other at the junctions of quarter-section holdings (MTS, 1991).

The communities of Bow Island and Smoky Lake are relatively centrally located, well-connected, and have soils and terrain ideally suited for agriculture. Both communities are the largest urban centres in their counties. Bow Island has the potential to grow a greater diversity of crops because of its climatic advantages, but the shortage of moisture requires irrigation which results in higher production costs. Smoky Lake is more limited in the kind of agriculture possible, because of the shorter growing season and lower temperatures, but lack of moisture is less of a problem.

The Agricultural Base and the Agri-Processing Sector

To be able to identify the key factors that facilitated or hindered agri-processing industry development, an understanding is needed of how agriculture and agri-processing have changed and developed in these communities. The changing agricultural base and the recent economic development in the communities of Bow Island and Smoky Lake will be addressed. Some general trends in economic development will be discussed to help place the development of the agri-processing industry of these communities in context. Discussion of these trends will aid our understanding of how and why agri-processing industries have developed in these communities.

Until the 1950s and 1960s dryland farming predominated in the Bow Island area. Wheat was the principal crop, but yields were low and cropping practices had to allow for moisture conservation, and control of soil drifting (Department of

Industry and Development, 1963). There was little diversification of agriculture apart from some ranching. The early 1970s saw the beginning of many changes. The availability of irrigated land attracted new farmers to the area. Those interviewed[1] claimed there was almost a total replacement of the existing dryland farmers, by younger farmers from the Netherlands and Idaho, as well as Japanese-Canadians and farmers from elsewhere in Alberta. This has been critical to the development of the area as many of the new farmers had previous knowledge of irrigation farming, and some had previous experience in bean growing.

Since the 1950s, a small acreage of beans had been grown in the Bow Island area. This remained stable until the late 1960s. In 1969, some local farmers and businessmen founded Alberta Bean Growers Ltd. In 1974; they built a dry-bean processing plant and contracted 2,400 acres. Interest was keen, processing and acreage-contracting quickly expanded. In 1978, Alberta Bean Growers Ltd. sold their business to the Alberta Wheat Pool. They felt they lacked the necessary capital and management expertise to continue with the expansion that was required. Since then the bean acreage has continued to expand, and in 1992 some 22,400 acres were contracted in the surrounding area (Alberta Wheat Pool, 1992).

Other ventures involving local business people and the farming community have resulted in establishing other agricultural-processing facilities in the community. In 1982, a sunflower processing plant was opened, and in 1985 an alfalfa-cubing plant began operation. Also, considerable acreage of sweet corn and potatoes are grown locally and shipped to Lethbridge for distribution. A local corn-marketing company sells the corn grown in the area, and there is a company

that processes and markets spearmint and peppermint. Another company processes local products for salad toppings and snack foods. These processing developments are locally owned and primarily use local products that are almost totally exported outside the local community (Bow Island, 1992).

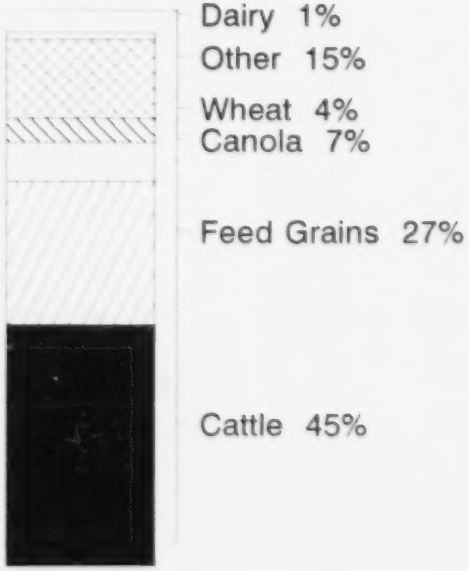
The economic base of Smoky Lake has changed since its early days. Initially, its primary function was to serve the Ukrainian agricultural community that settled in the area. While it remains an agricultural service centre, it has also become a government service centre. However, agriculture has changed and this has had consequences for the community.

Activities on the farms have changed. For example, there has been an increase in cow-calf operations, a change in the type of crop cultivation, a decline in dairy farming, an increase in specialised farming, and an exit from farming by some operators. The changes can be attributed to a decline in the profit margins available in some of the traditional crops, such as wheat. Farmers have converted to raise crops like canola, peas and feed grains, where returns are better. The increase in cow-calf operations responds to the demand for cattle in the southern Alberta feedlots. The decline in dairying is a result of some older farmers cashing in their quotas and retiring. There has been an increase in specialised farming as crops, and activities such as bison, mushrooms, honey, and sunola are sought, which provide better returns[2].

The contrast in farm activities is reflected in the data on farm types and crop acreage for the two communities (Figure 6.1, Tables G6.1 and G6.2). In the County of Smoky Lake, cattle rearing and raising of feed grains accounts for 72%

Number of Farms Classified by Type - 1987

County Of Smoky Lake



County of Forty Mile

Source: Alberta Agriculture, Smoky Lake and Bow Island Community Brochure 1992.

Figure 6.1.

of the number of farms. The major farming activities in the area are geared toward supplying cattle and feed for feedlots in southern Alberta. Farming activities such as dairying, hogs and poultry that provide direct inputs for agri-processing, only account for 6% of the farms. In the County of Forty Mile, wheat and small grains dominate, accounting for almost 76% of the total number of farms. However, there are a greater variety of crops raised in the Bow Island area. From Table G6.2, it is evident that while wheat dominates in Bow Island, beans, corn, sunflowers, and miscellaneous crops account for 27.5% of crops grown. Also, in interviews it was noted, that dryland wheat and cattle raising dominate in the Foremost area to the south; whereas, irrigated crops dominate in the Bow Island area. Agriculture exhibits more variety and diversification in Bow Island, whereas in Smoky Lake it is more tied to cattle and cattle feed production, with wheat and canola growing in secondary importance.

Some farmers in Smoky Lake have responded to the economic pressures by "exiting,"[3] while others rely on off-farm income to supplement their income. It is estimated 75% of farmers in the County of Smoky Lake now rely on off-farm income to supplement their income[4]. The oil and gas industry and the local tree nursery, both provide seasonal employment and are the prime sources of this income.

Smoky Lake has had a history of an agri-processing industry since its early days. Local farmers built a flour mill in 1916 that served the local community until 1944, when it burned. It was never rebuilt (The County of Smoky Lake, 1967). An alfalfa plant has existed in the town since 1970, drawing supplies from a

wide region, which had an important local employment impact. However, in the last year, the plant has changed its operations to peat moss processing. The agri-processing plant with the most recent impact on the community is Holgerson Dairies. The plant that was built and opened in 1988, purchases supplies within a local radius of 50 km, and markets its produce in northern and central Alberta. This enterprise has survived and prospered despite intense competition and excessive regulation of the dairy industry. It was established by a local dairy farmer in Smoky Lake, and for practical reasons, the plant is located near his dairy farm[5]. Accordingly, the location of the dairy in Smoky Lake was not due to proximity to the main raw material (milk), but was for personal convenience. Only 10% of the milk supply is locally produced, the remainder comes from outside the County.

Both communities have experienced different paths of agricultural and economic development. Bow Island's agricultural base has diversified considerably from extensive wheat growing and ranching, to intensive crop cultivation. The influx of new farmers to the area, combined with the development of irrigation and the climatic conditions, have provided the necessary conditions for diversification to take place. The community has also been successful in having the initial processing of some of the diversification products carried out in their community. The input of local farmers and business people, as well as local government, have been critical. The agri-processing developments in Bow Island have emerged out of the agricultural diversification that has taken place.

In Smoky Lake agriculture has changed. Now, raising cattle and cattle feed, together with growing wheat and canola, dominate farming. The trend from mixed to specialised agriculture has resulted in Smoky Lake concentrating on providing cattle and feed for the feedlots in the south. Wheat and canola, in their raw state, are also tied to markets outside the community. Since these commodities are transferred out of the community for processing, the potential for development of agri-processing is greatly reduced. The processing that has developed is more related to local personal ties than to availability of local raw materials. In contrast to the Bow Island agri-processing industry, developments in Smoky Lake are not directly related to local agricultural trends.

Local Government

Analysis and discussion of the role of local government is important as it allows a better understanding of how the changes have come about, and the role of government and key people in this process. Initially, the role of economic development institutions, local prominent business people, and farmers will be examined. Then the nature and impact of local government will be dealt with. Discussion of leadership and local government is primarily based on the interviews carried out in Bow Island and Smoky Lake[6] (Appendix D).

In Bow Island, the Economic Development Officer (EDO) plays an important role in the economic diversification that has, and is, taking place. The role is one of co-ordination and networking. Efforts are made to link people from within and outside the community who have the potential to enter economic relationships that are beneficial to community interests. Through the EDO the

community's members have access to information and contacts they may not be able to get on their own. The impression gained, is that the EDO is the driving force and initiator behind much of the economic developments taking place at Bow Island. The local MLA is regarded as an important community figure. Some of the employment that has come to Bow Island is credited to the MLA, particularly that under the control of the provincial government. The MLA is also regarded as being responsible for ensuring local industry and business received grants when starting up, or expanding.

Another aspect of leadership in the community of Bow Island seems to be that of leading farmers and entrepreneurs. It appears there is a group of farmers and business people who are at the forefront of the economic diversification initiatives that have been undertaken. This group is connected to the new farmers that moved into the area, and it has allowed the marketing needs of local farmers to be met by local business people, resulting in benefits to both. It seems that economic leadership in the community may not rest with the formal roles in the community, like the mayor and councillors, but rather with some key economically-active people who are supported by local professionals.

For the functioning community of Bow Island, local government responsibilities are divided between the town and the county. This may be generating some competition in regard to responsibilities and tax base. The inadequacies of this situation are recognised by the town, as it produces brochures that encompass the activities of the town and its hinterland. The Bow Island town administration very actively promotes the development of the community, and in the past has

provided inexpensive land to attract industrial location. It is currently embarking on an incentive scheme for industry to locate in the town. The town will provide free industrially-serviced land to new industry, based on one-half acre for every two jobs created for a minimum of four years. The town plays an important role in promoting Bow Island as a community interested in economic development, and through the EDO, and others, facilitates such development.

The style of local government in the County of Smoky Lake is more co-operative in approach, and regional in organisation. Economic development is organised regionally by a Regional Economic Development Committee. The Regional Economic Development Officer promotes development for all the municipalities within the Smoky Lake region. This region was one of the first to set up joint-municipalities meetings for mayors, reeves and councillors in the area to discuss issues of common interest and concern[7].

In Smoky Lake, the approach to economic development is more locally focused than in Bow Island. The emphasis is on marketing and promoting local products, rather than attracting outside business or investment. Initiatives undertaken include trade fairs to promote local products, and planning the establishment of a "Community Kitchen," that would facilitate the production of commercial quantities of locally-produced food products. There are no direct incentives to promote location of businesses in the area. However, the community was very active in supporting the location and funding of the new dairy plant. A "good site" was provided by the town, and town council and Chamber of Com-

merce joined the fight to allow the use of plastic bottles, and to provide federal and provincial funding for the project[8].

The case of Holgerson Dairies highlights the political and other barriers that can be used to block entry of a new operator in an industry. Though the local community favoured the new dairy processing plant, a few large players in the Alberta dairy industry were able to put up political and regulatory obstacles to try to limit competition. The competitors sat on a government regulatory board and blocked the established of Holgerson Dairies. Only after considerable legal and public relations efforts, was the dairy finally allowed to operate. This example shows how the structure of an industry can operate to inhibit development.

The community of Bow Island aggressively promotes its economic development. The EDO plays a key role in developing policies, linking mutual interests and attracting industries. The role of the EDO is complemented by local business and farming interests, who have the necessary raw materials and capital to invest in agri-processing. Smoky Lake, with a more regional and co-operative approach, promotes local products available, and supports local potential economic development. In contrast to Bow Island, it does not aggressively attract or promote the location of new enterprises. However, because of its agricultural base, it does not have the same potential to develop or attract new agri-processing industry as does Bow Island.

Impacts of Development or the Lack of Development

In this section, the second key question of this chapter, relating to the impact of development or lack of development on the communities of Bow Island

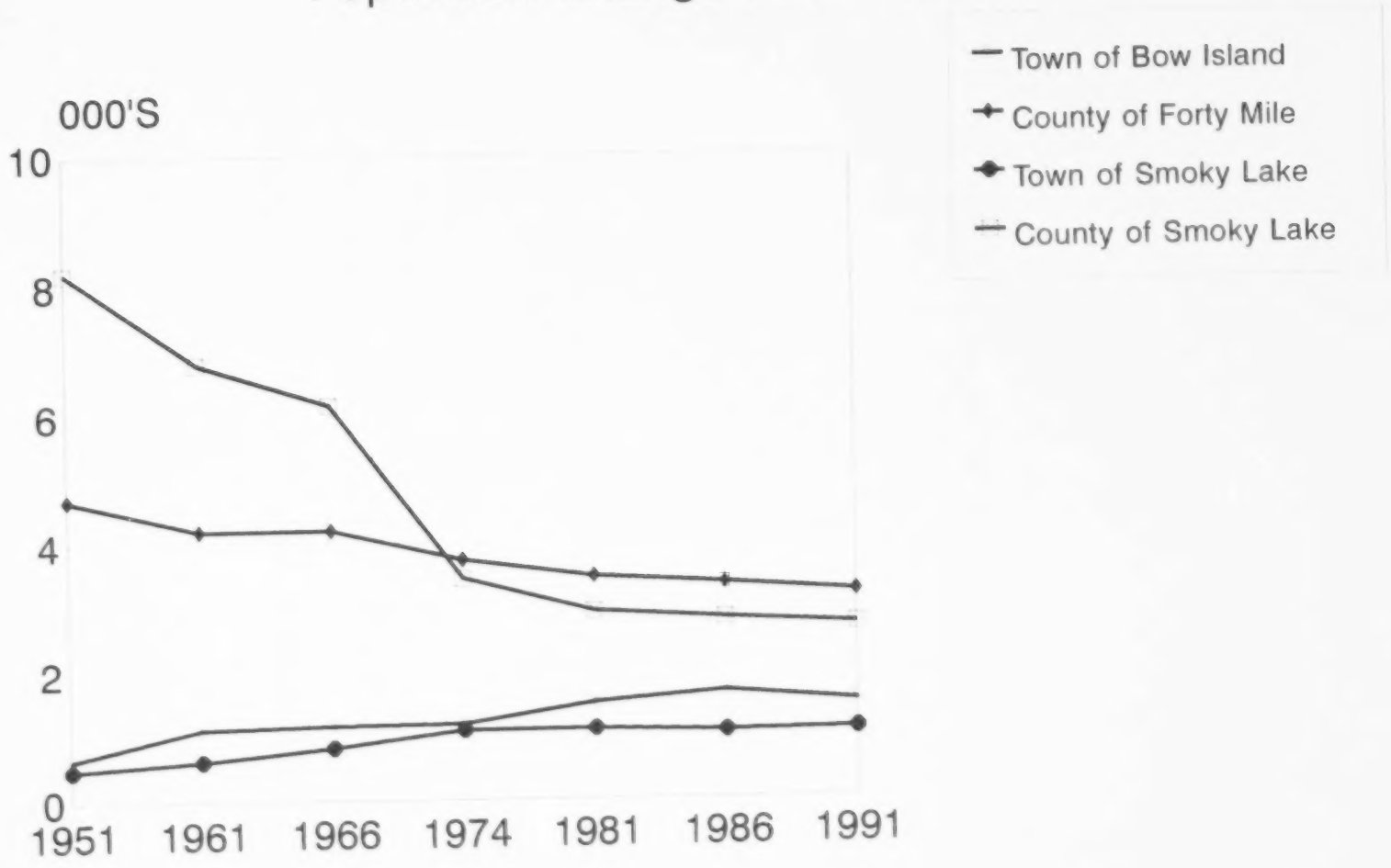
and Smoky Lake will be addressed. The impact will be assessed by examining and comparing population, income, and employment indicators for the two communities. The indicators examined are general signs of the overall well-being of the community, therefore, the assessment will be of the general conditions of Bow Island and Smoky Lake.

Demographic Analysis

First, the changing demographic characteristics of the communities of Bow Island and Smoky Lake will be examined. Statistics Canada provides demographic data for municipalities and counties separately. Therefore, data for both these units will be presented to gain an insight into the changing demography of the communities. The changes in total population in the long term, as well as the age group structure of the populations, will be examined. These general population indicators show the overall growth or decline characteristics of both communities population, as well as the relative proportions of active and dependent sections of the population. This will indicate whether the communities are attracting or losing population, and the potential for economic contribution by the population.

The population in the Town of Bow Island has experienced long-term population growth since 1941 (Figure 6.2, Table G6.3). Population grew rapidly in the 1940s and 1950s due to availability of irrigation, and the prosperous times that promoted town growth. The population remained stable until the 1980s, when growth of 26% from 1974 to 1981, and of 10.6% from 1981 to 1986 was again experienced. The population declined by 10% from 1986 to 1991. The renewed growth in the 1970s and 1980s is due to economic developments at the time, as

Population Change 1951 - 1991



Sources: Community Profiles & Statistics Canada catalogue 94-117 1986 and 95-372 1991.

Figure 6.2.

well as the expansion of public facilities. The decline in population since 1986 was attributed to the impacts of the recession, as some farmers and businesses were forced out of business[9]. The County of Forty Mile has, in contrast, experienced long-term population decline. In the 35-year period examined, population has declined by 47% showing a steady decline, except for a period of stability during the 1960s.

In the case of the Town of Smoky Lake, the population grew steadily until 1974, and has since been relatively stable (Figure 6.2, Table G6.3). Again, in contrast to the Town of Smoky Lake, the County of Smoky Lake has experienced long-term population decline. Since 1951 the population has declined by 43%, and this trend continues to 1991. Comparison of 1981 and 1991 figures put the trends in perspective. In this 10-year period the population in the Town of Bow Island fell by 0.4%, while the population in the County fell by 7.5%. The population of the Town of Smoky Lake fell by 2.1%, and the County fell by 7.6%. This compares with a province-wide growth rate of 5.7%, and a nation-wide rate of 4.0% (Statistics Canada Catalogue 94-117, 1986). A picture emerges of stabilisation of population growth in the Towns of Bow Island and Smoky Lake, and steady decline in the respective counties, compared with provincial and national trends.

Relative to the counties and the Province of Alberta, the Towns of Bow Island and Smoky Lake have high-dependent populations (0-15 and over 65 years of age), and low-active populations (15-64 years of age) of the working age groups (Table G6.4). This can be explained by the tendency for older people to retire to the town, which was confirmed in interviews in both communities. However,

despite this general trend, 1991 statistics show that Smoky Lake has a less active working-age population (48.3%) than Bow Island (57.3%). Conversely, the towns have high-dependent populations, with Smoky Lake having the highest in 1991 at 51.7%, compared to 42.7% for Bow Island. The counties have 34.7% and 36.6% respectively, and the province had 31.7%.

The rural county areas of the communities have experienced a steady decline in population. The towns underwent steady increases in population until the 1980s, since then there have been some fluctuations, with a noticeable decline in the population of Bow Island from 1986 to 1991. Both towns exhibit high-dependent and low-active populations relative to the counties and the province. The Town of Smoky Lake is worst off in this respect, having a 10% lower-active population than Bow Island. The trends of rural population decline, high-dependent and low-active populations are in line with the compositional trends identified by Dasgupta (1988) for Canadian rural populations in general.

However, the steady growth of the population in Bow Island through the 1970s and 1980s coupled with the higher proportion of active population, implies a positive impact of the diversification of agriculture and development of the agri-processing sector. Further evidence for this will be presented when the extent and timing of employment impacts of the diversification are discussed. In the case of the Town of Smoky Lake, the population has remained stable, but this is due to an increasingly older population (including retirees moving to town), rather than economic developments. Those aged 65 years and over, constituted 34% of

Smoky Lake's population in 1991, compared to 19.5% for Bow Island (Statistics Canada 1991, 95-372).

Income and Employment

Two of the most important indicators of economic development in a community are income and employment. The levels of income, compared with other communities and to provincial and national levels, give an insight into the economic activity of the community. The level of employment, unemployment, participation rates in employment, and the ratio of basic to non-basic employment, point to the degree that labour is being fully utilised. Complete data on employment and income for the communities are not available, because the data sources focus on municipalities alone, or on counties excluding municipalities. However, the data obtained will be interpreted as best as possible.

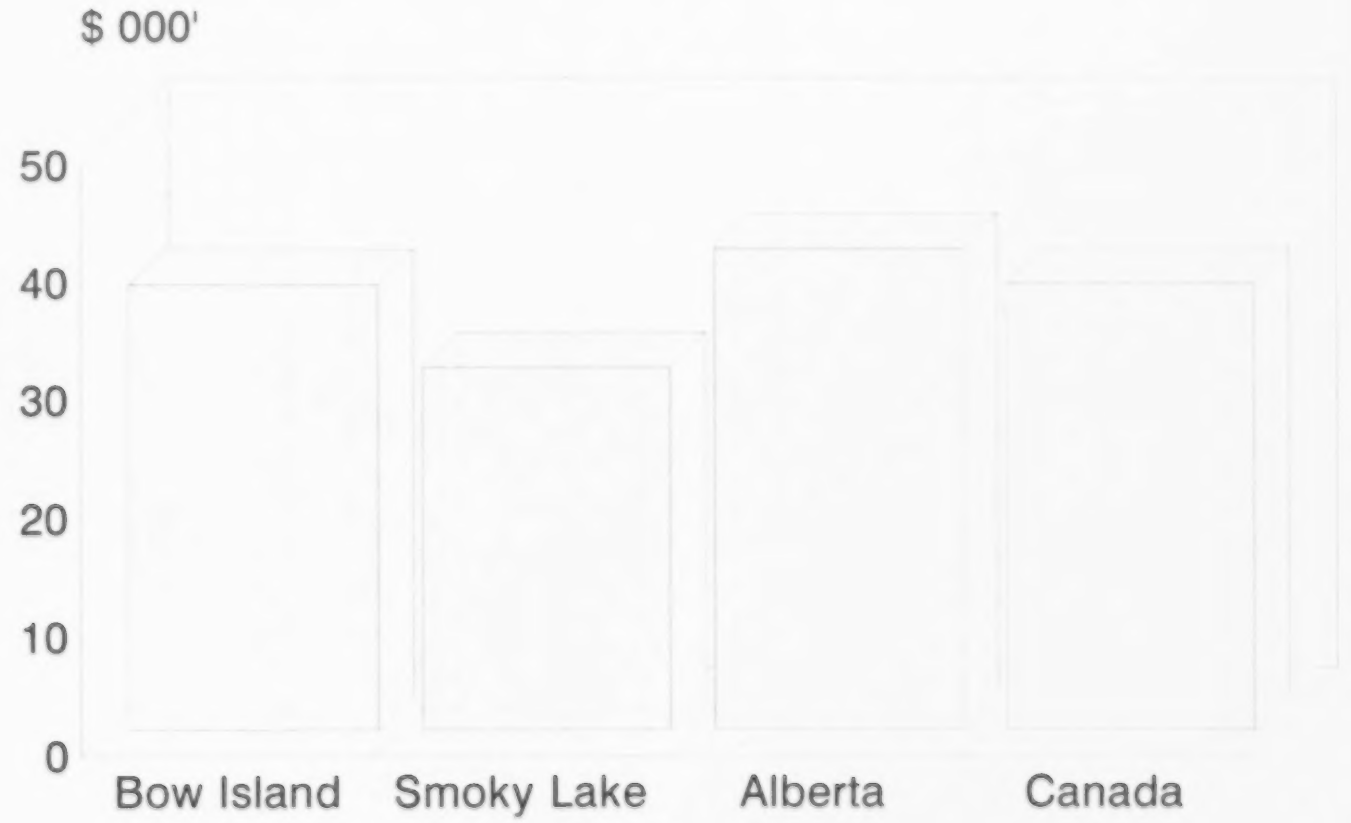
Agricultural sales data at a local level are available for the Counties of Forty Mile and Smoky Lake. It will be assumed that the local data will indicate trends for the Bow Island and Smoky Lake communities, though it includes data for the whole county. Incomes for the farming community are from sales of agricultural products. While agricultural sales do not directly reflect income and are affected by many factors, such as farm size and productivity, they are related to income. The higher the sales, the more likely the higher the income. In the County of Forty Mile, 40% of farms reported sales of over $100,000, while in the County of Smoky Lake, only 10% reported sales of over $100,000, compared to 20% for all of Alberta. Farm operators were younger in the County of Forty Mile, than the provincial level. In Alberta, 31% of farm operators were under 40 years

of age, compared to 38% for the County of Forty Mile. In the County of Smoky Lake, 24% of farmers were under the age of 40 in 1986, which is lower than for Alberta and the County of Forty Mile. Farm sales are, therefore, higher in the Bow Island hinterland than in the County of Smoky Lake and Alberta in general, and farm operators tend to be younger (Alberta Agriculture, 1986).

Incomes for the residents of the Towns of Bow Island and Smoky Lake are from employment, business and government welfare. From Figure 6.3 and Table G6.5, it is evident that average family income for the Town of Bow Island is slightly below the national average, while the Town of Smoky Lake is considerably lower than the County, and it is considerably below the national and provincial level. Again, labour force participation rates for Smoky Lake are lower than all the others, with male participation rates lagging almost 20% behind those for Bow Island and provincial levels. Female participation rates also lag, but not to the same extent.

Considering the rural and agricultural nature of Bow Island and its hinterland, the farm income levels and labour force, participation rate data indicate strong economic activity. Conversely, the levels and rates for Smoky Lake are low, however, the high proportion of seniors in the town partly accounts for the lower levels. In Bow Island, a greater proportion of the community is in the economically-active age groups and are participating in the labour force. Farmers are younger, and incomes for farmers and town dwellers are relatively high. This indicates a younger community where the labour force is more fully utilised, which has a higher level of income than Smoky Lake.

Average Family Income - 1986



Source: Statistics Canada catalogue 94-117, 1986.

Figure 6.3.

The labour force in the Town of Bow Island increased from 485 in 1974, to 860 in 1986, an increase of 77% (Table G6.6). In the Town of Smoky Lake, the labour force increased from 330 to 430 (Table G6.7), an increase of 30.3%. For both communities, the major areas of employment increase were retail trade and services (including community, business and personal services). There were smaller increases in other sectors such as manufacturing, construction, and transport, communication and utilities, but the major increases were in retail trade and services. This is borne out in an analysis of the basic to non-basic ratio[10] between 1974 and 1986. It increased from 1 : 0.94 to 1 : 2.65 indicating each basic job became more important in its multiplier effects in the non-basic sector. In the case of Smoky Lake the basic to non-basic ratio increased from 1 : 0.56 to 1 : 3.09. Therefore, it would appear that the extra employment and income created by the diversification of the economic base, has its greatest impact on the level of trade and services that could be supported (Alberta Business Development and Tourism, 1974a and b; Alberta Economic Development and Trade, 1986a and b).

Unemployment rates for both communities remained very low until 1981, accounting for only 4% of the active-labour force (Table G6.8). From 1981 to 1986, the rates for Smoky Lake more than doubled to 11% for males, and 12% for females. The unemployment rate for Bow Island remained low to 1986 at 5% for males, and 8% for females, despite the employment rate almost tripling. The jobs that came on stream in the 1980s helped to keep Bow Island's unemployment rate low. These included a sunflower processing plant that opened in 1982 and expanded in 1988. In 1992, it employed 12 to 25 employees, depending on the

season. The plant is located south of the town, and is not included in Bow Island employment figures. The new alfalfa-cubing plant that opened in 1985 employs 15 to 20 people. The bean plant underwent three expansions in 1982, 1986 and 1987, which increased capacity and employment. By 1991, the bean plant employed 11 full-time, and up to 20 part-time staff.

A significant part of increased employment in Bow Island is due to more public sector employment. In interviews, respondents noted the improved public services have been the most significant change in the area in the last 15 years. The Provincial Building and the local hospital, are the two biggest employers in the town. The hospital, relatively small in 1974, has since had two major expansions and now serves the entire County. A senior citizens' lodge opened in 1978 and expanded in 1983. Employment[11] in the public service in Bow Island has increased from 63 in 1974, to 350 in 1986. The increase in public sector employment had a major impact on employment in the town, therefore, a major share of the positive impacts on the town are due to public sector employment as well as developments in the agri-processing industry.

In contrast to Bow Island, where a significant proportion of the agricultural product is processed locally, Smoky Lake exports almost all its agricultural products outside the community. In an interview with the Agricultural Field Officer for the County, he estimated all agricultural products, except milk, are processed outside the County. Cattle are sold for finishing almost exclusively to southern Alberta, hogs are shipped to Red Deer or Edmonton for processing, wheat is exported through the elevator system, feed grains go to southern Alberta

for cattle feeding, canola to Fort Saskatchewan or through the elevator system, and alfalfa is used by farmers for animal feed.

From the analysis and discussion of income and employment, a contrasting picture of the two communities emerges. Bow Island farmers are younger and have greater sales value for their products. Family incomes and labour force participation rates in the Town of Bow Island are higher. Employment from 1974 to 1986 has increased and the basic to non-basic jobs ratio has increased in both communities. Absolute unemployment levels have increased in both communities, but the unemployment rate has increased in Smoky Lake, while remaining stable in Bow Island. The advent of jobs in the agri-processing and the public sector in the 1980s has kept unemployment low, boosted labour force participation levels, and maintained good family income levels.

In contrast, Smoky Lake farmers are older than average, they have lower levels of farm sales, family incomes are well below the provincial average, labour force participation rates are lower, and unemployment is higher. The community has not benefited in terms of employment from the processing of local agricultural products because the products (except milk), leave the community for processing. Also, much of the agricultural products from the Smoky Lake community were an input for agriculture elsewhere in the province. Because the value added outside the community through agriculture and agri-processing is divided between more farmers and processors, profit margins for Smoky Lake farmers are reduced.

Conclusion

The experiences of Bow Island and Smoky Lake in the development of their agricultural-processing industry have been very different. While both communities have similar early histories, are well located, have terrain and soil ideally suited to agriculture, they have developed along markedly diverse paths. The climate in Bow Island, along with the availability of irrigation, and the influx of new farmers, has allowed agriculture to diversify. The availability of local capital, entrepreneurial ability, and a dynamic economic development institution have resulted in the community capitalising, and benefiting from the location of the processing of the products. In Smoky Lake, agriculture has changed and become specialised, but the products produced require finishing elsewhere in the province, or because of their commodity nature, require exporting from the community. The potential for development of agri-processing is restricted and the development that has taken place, is due primarily to local factors.

From understanding the experience of these communities, the factors that facilitated and hindered development of an agri-processing industry become evident. Physical factors limit and provide opportunities for the type of agriculture that is possible, which in turn affects the agri-processing potential. For Bow Island, the climate provided advantages that were exploitable due to the availability of irrigation. On the other hand, the harsher climate places limits on the agricultural possibilities for Smoky Lake.

The influx of new farmers to the Bow Island area also contributed to development. The new farmers were adaptable to the new agricultural opportun-

ities and were willing to change and take risks. With the new farmers came capital, entrepreneurial ability, and experience with different agriculture. These three factors have had a critical importance in allowing agri-processing to develop. Having a dynamic local institution or individual is also an important factor. In Bow Island, the EDO provided the link to bring together the necessary actions and other ingredients for projects to be implemented. In Smoky Lake, local community support was very important in ensuring that Holgerson Dairies would go ahead and not be stopped by competitors.

The availability of agricultural products that are unique to the region is an important factor in allowing agri-processing to develop. Unique agricultural products create an opportunity for local processing to develop. Conversely, generic products are more likely to be processed outside the community, as processing will tend to be large scale, and located in larger communities. Local factors are also important to agri-processing development, the presence of a local entrepreneur with personal, historical, or economic ties to a community influences initial location. This is evident from the dairy in Smoky Lake. This was also evident in the questionnaire responses on location, where personal/historical reasons were the most frequent responses in accounting for the plant's current location. Once a plant is established, geographical inertia can maintain that location. The presence of the processing facilities, labour force, raw materials and auxiliary services also are powerful attractions in retaining that location.

Bow Island has been successful in the development of its agri-processing industry, resulting in positive impacts for the community. It has successfully

diversified its agriculture and capitalised on this by carrying out most of the processing in its own community. While Bow Island has recently lost population, the agri-processing developments in conjunction with other new employment created in the community, resulted in significant population growth during the 1970s and 1980s. It has also resulted in a relatively lower-dependency population, a younger population, higher average family incomes, greater participation by the population in the labour force, and lower unemployment.

Smoky Lake has not been as successful in the development of its agri-processing industry. Its agriculture has become more specialised but it has become tied into feeding other regions markets in a raw or preprocessed state. The potential for developing agri-processing, and the resulting benefits have been limited. Its population has remained stable since the mid-1970s and furthermore, the aging population may make it difficult for the town to sustain its population, without attracting significant numbers of young people. In contrast to Bow Island, Smoky Lake has higher unemployment, lower than average family incomes, a higher-dependent population, and an older population.

Notes

1. Interviews were conducted with the Local Government Officials, Farmers and Agri-processing management on November 18 and 19, 1992, in Bow Island (Appendix D).
2. The data source for the changes described here were from interviews undertaken with Local Development Officials, the Mayor of Smoky Lake, Farmers and Agri-processing Management on June 29 and 30, 1993 (Appendix D).
3. Farmers selling their farms to farm elsewhere or carry on a different occupation.
4. The Agricultural Field Officer in Smoky Lake provided this estimate.
5. The reason for the location of the dairy plant in Smoky Lake was discussed with the owner in an interview.
6. Interviews were carried out with the Mayor and the Regional Economic Development Officer in Smoky Lake and the Economic Development Officer in Bow Island (Appendix D).
7. This information originated from a copy of correspondence to businesses who may locate in Smoky Lake, received from the Regional Economic Development Officer.
8. Interviews with the Mayor, Regional Economic Development Officer and the owner of the dairy plant provided this information (Appendix D).
9. This was the view of those interviewed in Bow Island (Appendix D).

10. The basic/non-basic ratio compares basic employment (i.e., employment that produces for export) with non-basic employment (i.e., employment that serves the local market). The ratio takes the form 1:x where x is non-basic employment divided by basic employment (Smith, 1971). Employment data from Tables G6.6 and G6.7 were used to calculate the ratios in this study. Included under basic employment were primary industries, manufacturing, public administration, and defence. Non-basic employment consisted of construction, transport, communications, utilities, retail trade, wholesale trade, finance, insurance, real estate, and services.

11. Estimated public service employment is based on grouping appropriate categories of employment for the Town of Bow Island (Alberta Business Development and Tourism, 1974a; Alberta Economic Development and Trade, 1986a).

CHAPTER 7

CONCLUSION AND POLICY IMPLICATIONS

The trends apparent from the analysis of location change, rural policy, and the case study of two rural communities will now be synthesised. Some conclusions will be drawn on agri-processing industry trends and their implications for rural development. Based on these conclusions, policy recommendations will be set out for rural development policy.

Locational Change

The first research question posed in this study was whether or not there has been a shift in the location of agri-processing plants and employment from rural to urban? The research shows there has not been a shift. During the study period, the share of plants located in rural areas has not changed significantly. Towns and rural areas have maintained their share of plants during this significant growth period. Actually, rural areas have increased their share of plants, though this share was, and continued to be, relatively small compared to the number of plants in the province. There was evidence of several trends in the analysis including restructuring, diversification, locational sorting by plant size, and a slowing down of the growth for town and rural locations. The diverse trends apparent in this study, point to the differential impact of industrial restructuring, and other processes on agri-processing, that subsequently affect rural communities as well as the Province of Alberta.

Economies of scale resulting in restructuring of agri-processing plants and employment were evident in the dairy industry, as smaller plants in towns and

rural areas closed, resulting in fewer large plants located in cities and metropolitan areas. Recently, this trend was evident in the larger meat-packing plants as closures particularly affected metropolitan areas and cities. However, the restructuring has had contrasting locational consequences; namely, concentration in urban areas in the dairy industry, and deconcentration to rural areas in the meat-packing industry. The potential for rural communities to benefit from the deconcentration is very limited. Chiotti (1992) predicts that two "mega," and one medium-sized, beef-packing plants can handle the capacity for all of western Canada. Restructuring in the more traditional agri-processing industries has resulted in fewer and larger plants, thus removing viability from most rural communities. This trend is evidence of the separation of the food-supply system from the prosperity of rural settlements. This tendency also indicates that the beef and dairy industries are in the later stages of the product-profit cycle.

Diversification was apparent with growth of honey processing in rural areas, special crops in southern Alberta, pet foods, confectionary and snack foods primarily in metropolitan areas, and Specialty foods in metropolitan areas. The diversification that has occurred has been either urban and market-oriented (as in the case of confectionary, snack foods, Specialty foods and pet foods), or rural and raw material-oriented (as in the case of special crops and honey). Diversification has been a response to the changing market needs and the need for processors to maintain profits. At the farm level, diversification has been a response to risk and uncertainty (Napton, 1992). As was evident from Bow Island, processing from agricultural diversification can benefit the local community. However, diversifica-

tion is not possible for all communities and in some cases (e.g., honey), there are very limited benefits for the local community. The markets for diversified products are often small and can quickly become saturated.

Processors employing smaller number of employees exhibited a preference for metropolitan and city locations. Conversely, medium and larger employers exhibited an increased preference for town and rural locations. The increased preference of larger employers for town and rural locations points to the cost advantages of rural locations. In rural locations, processors can take advantage of the proximity to raw materials. However, the spatial analysis indicates they are tending to locate close to metropolitan centres within the urban field. This would support Dilley's (1991) contention that rural Canada is not prospering, except for those communities adjacent to metropolitan areas. In spite of this pattern, strong regional growth in town and rural areas was also evident in southern Alberta. The interdependencies of the feeds industry, beef packing industry and feedlots and the diversification of agriculture and agri-processing can be attributable to this growth. The growth of smaller processors in metropolitan and city locations is closely related to entrepreneurial endeavours. For many of these processors, proximity to the customer is paramount, and the customer may be the public as well as other retailers.

The number of agri-processing plants has grown rapidly during the study period, but since 1987 there has been a noticeable slowdown in the number of smaller processors in town and rural locations. These Settlement Types have lost in their share of total plants, to city and metropolitan areas. Also, the predomi-

nant trends of relocations and anticipated relocations to urban areas do not bode well for rural and town locations. The decline in the growth in rural and town locations may be evidence of the recession hitting harder in rural areas, but this would require further research and investigation. This trend would undermine locational incentives if the tendency is against rural locations.

Impact of Government Policies

The second research question was to examine the employment impact of policies in agri-processing that promoted rural development.

This study suggests that the policies implemented to support job creation and development in the agri-processing industry have been successful. The programmes have positively impacted job creation and the quality of jobs maintained. Towns and rural areas have benefited to the greatest degree from these programmes either from employment, residence of employment created, or the supply of raw materials to the plants. However, caution must be observed in attributing significant influence to these government programmes on trends and patterns in the industry.

From earlier analysis, it was evident that government support was not an important locational determinant for agri-processing plants. Personal/historical reasons, as well as proximity to raw materials and the market, were the dominant locational influences. Previous evaluations have shown that the programmes did not influence the decision to invest or not. Also, the total assistance available from the programmes only amounted to 4.5% of all capital expenditure in the industry. Given these facts, the potential of the programmes to influence location

or investment decisions was small. Attributing the location of the jobs, the creation of new jobs or other employment improvements, directly to the programmes is unrealistic as it is only one element in the location and or development decision.

For policies to influence location, the principal location determinants must be positively affected. Since it is difficult to have an impact on decision making through capital assistance, policies should focus on providing information and support to help communities diversify and undertake new developments. Policies must build on local strengths such as historical advantages, availability of raw materials and access to markets. The case study of Bow Island illustrates this point. A community can develop an agri-processing industry by assisting the diversification of agriculture. The agricultural products produced by a community are very closely related to the potential for development of, and the benefits accrued from an agri-processing industry. Increased specialisation and diversification of agriculture, therefore, brings opportunity. The potential for opportunity exists, if the specialisation is unique to the region, if the product is in a readily processable form, and if the product has an accessible market. Local development institutions can play a key role facilitating such changes, as in the case of Bow Island. The diversification can make new raw materials available, therefore, allowing agri-processing to develop and the community to benefit. Diversification of this kind must happen at the local level using local resources and leadership to meet locally-defined needs (Bryant, 1992).

The case studies of Bow Island and Smoky Lake illustrate how, if the right conditions exist, rural communities can diversify their agriculture, and benefit from the development of an agri-processing industry. As expected, a developed agri-processing industry closely tied to local agriculture has positive demographic, economic, and social impacts for the community. Without such development, a community can experience lower than average incomes, a shortage of jobs and hemorrhaging of its young and active population through outmigration. However, not all rural communities can diversify their agricultural base. As well as having the necessary physical resources, leadership, and entrepreneurial ability, a demand must exist in the market for the processed products. Diversification presents opportunities, however, it is likely to increase prosperity for a few communities rather than rural Alberta in general.

Policy Recommendations

1. Policies need to differentiate between different types of rural space. Account needs to be taken of the different problems and needs of rural areas close to metropolitan areas, rural areas in the outer-urban field, and peripheral rural areas.
2. Resources must be targeted to rural areas in the outer-urban fields and in peripheral locations.
3. Development based on agricultural and agri-processing diversification must begin at the local level, identifying new development or diversification.
4. Agencies should continue to make outside information, expertise and experience available to these communities.

5. The focus should be on an integrated approach where the development of agricultural diversification, agri-processing and spin off services are linked, so maximum benefits accrue to the local community.
6. Support should be maintained for productive locally-based development institutions. Such institutions can be key to maintaining the viability of smaller communities.
7. Through training, assist rural communities meet local labour market needs.

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APPENDIX A

QUESTIONNAIRE

University of Alberta
Edmonton

Department of Geography

Canada T6G 2H4

3-32 HM Tory Building. Telephone (403) 492-3274
Bitnet: USERGEOG@UALTAMTS
Fax: (403) 492-7598

23 November 1992

Dear Sir or Madam,

I would like to introduce Patrick Enright, my graduate student in geography, at the University of Alberta. He has ten years management experience in the Food Industry in Europe. We are conducting research on changes in the location of employment in the Food and Agri-processing industries in Alberta. We would be most grateful for your co-operation and assistance in the completion of the enclosed short questionnaire.

The questionnaire is divided into three sections. The first seeks information on changes in location and current employment, the second examines employment trends in government assisted projects and the third deals with local impacts and future projections.

We wish to stress the confidentiality of the data supplied. The data will only be used to generate general trends and patterns and the company name will not appear anywhere on the questionnaire. A stamped addressed envelope is enclosed for your reply.

A copy of the final report from this research will be available at the Agriculture Alberta library and at the University of Alberta library in Edmonton in the fall of 1993. **We earnestly request you to complete and return the questionnaire to ensure the research is complete and valid.** If you have any queries or would like further information, please contact us at the above address.

Yours sincerely,

R.G. Ironside

Dr. R.G. Ironside (492-3564)
Professor of Geography

Patrick Enright

Patrick Enright (492-5626)
(or messages at 492-3274)

Ref. No. _____

AGRI-FOOD INDUSTRY QUESTIONNAIRE

Employment and Locational Changes

Section A - Location and employment changes

Please check appropriately in the spaces provided.

1 Is your company

an independent company _____ or a branch of a parent company _____

2. How long has your company been in operation in its present location?

Pre-1975 _____ 1982 to 1985 _____

1975 to 1981 _____ 1986 to 1991 _____

3. What is the current employment at your company?

Full time	**Part time**
male _____	male _____
female _____	female _____
Total _____	Total _____

4. What is the total annual wage bill for your company?

$ million _____

5. Please indicate below what percentage of your workforce resides at the following settlement categories.

Urban _____% Rural _____%

Urban includes cities and towns with a population of greater than 1,000.

Rural includes villages, hamlets and rural areas with a population of less than 1,000.

6. Please indicate what percentage of your labour force are active farmers.

_____%

7. List in order of importance the three principal reasons why your company is in its current location?

   a. _____

   b. _____

   c. _____

8. Has your company changed its location since 1975?

   Yes _____ No _____

   If YES continue with question, 9 if NO proceed to question 11.

9. Did your company change location from:

   urban to rural _____ urban to urban _____

   rural to urban _____ rural to rural _____

10. Please list in order of importance up to three reasons why your company relocated?

    a. _____

    b. _____

    c. _____

Section B - Government assisted projects

11. Which, if any of the following joint Federal and Provincial programs has your company participated in?

    Nutritive Processing Agreement (N.P.A. 1) 1975 to 1981 _____

    Nutritive Processing Agreement (N.P.A. 2) 1981 to 1986 _____

    Agricultural Processing & Market Agreement (A.P.M.A.) 1986 to 1991 _____

    None of the above _____

    If answered 'none of the above' proceed to question 17, otherwise continue with question 12.

12. How would you rate the importance of monetary assistance available under these programs in the decision of whether or not to proceed with the investment decision?

    very important _____ important _____ not important _____

13. What was the impact of projects assisted under these programs on employment after all monetary assistance had been received?

additional employment created _____ existing employment secured _____

decline in employment _____ no change _____

14. Please indicate the impact of projects assisted by these programs on some qualitative aspects of employment after all monetary assistance had been received.

	increased	no change	decreased
skill level of employees	_____	_____	_____
productivity per employee	_____	_____	_____
value added per employee	_____	_____	_____
capital invested per employee	_____	_____	_____

15. Please complete the following details on employment created (if any) under the programs after all monetary assistance had been received.

		Type of employment	
	***Number of jobs created**	**Production Operative**	**Professional, Technical & Admin.**
N.P.A. 1	_____	_____	_____
N.P.A. 2	_____	_____	_____
A.P.M.A.	_____	_____	_____

*Full time equivalent jobs.

16. Please indicate below what percentage of the employment created under the programs resides at the following settlement categories after all monetary assistance had been received.

Urban _____% Rural _____%

Section C - Local impacts and future projections.

17. Please indicate below what level of the value of raw materials required for processing is purchased locally (i.e. within 100 km of the company)

0 to 25% _____ 26 to 50% _____

51 to 75% _____ over 75% _____

18. Please indicate the percentage of your labour force with the following one-way commuting journeys to work.

    under 26 km _____% 26-50 km _____%

    over 50 km _____%

19. Please indicate future employment trends you anticipate for your company.

    increase in employment _____ decrease in employment _____

    no change in employment _____

20. Please indicate the degree of difficulty experienced in finding suitably qualified and skilled labour locally.

    no difficulty _____ considerable difficulty _____

    some difficulty _____ great difficulty _____

21. Please indicate future locational changes you anticipate for your company.

    change to an urban location _____

    change to a rural location _____

22. Please indicate in order of importance the three principal reasons for any anticipated locational change.

    a. _____

    b. _____

    c. _____

****

THANK YOU FOR YOUR TIME AND CO-OPERATION IN COMPLETING

THIS QUESTIONNAIRE

APPENDIX B

REMINDER LETTER

University of Alberta
Edmonton

Department of Geography

Canada T6G 2H4

3-32 HM Tory Building. Telephone (403) 492-3274
Bitnet: USERGEOG@UALTAMTS
Fax: (403) 492-7598

4 December 1992

Dear Sir or Madam,

We wrote to you recently asking you to complete a short questionnaire on Employment and Locational Changes in the Food and Agri-Processing industries.

Your completed questionnaire has not yet been received. We realize that you are busy and have many demands on your time. However, the questionnaire should only take 10 minutes to complete and we wish to reassure you of the confidentiality of the data supplied. Individual company names or data will not appear anywhere in the results and questionnaire returns will be destroyed after the analysis is complete.

We need your response so that as complete a picture as possible can be established. We would be most grateful if you could complete and return the questionnaire as soon as possible.

Yours sincerely,

R G Ironside

Dr. R.G. Ironside
Professor of Geography

Patrick Enright

Patrick Enright
M.A. student

APPENDIX C

SECOND REMINDER LETTER

University of Alberta
Edmonton
Canada T6G 2H4

Department of Geography

3-32 HM Tory Building, Telephone (403) 492-3274
Bitnet: USERGEOG@UALTAMTS
Fax: (403) 492-7598

8 January 1993

Dear Sir or Madam,

We have not yet received your completed questionnaire on employment and Locational Changes in the Food and Agri-Processing industries.

We appreciate the demands on your time especially over the Christmas period. However, the questionnaire will only take short time to complete and the data supplied will be treated as confidential. Individual company names or data will not appear anywhere in the results and questionnaire returns will be destroyed once the analysis is complete.

In case you have mislaid the questionnaire, we are enclosing another along with a pre-addressed postage paid envelope. We would be most grateful if you could complete and return the questionnaire by January 22, 1993.

We hope the results of the research will eventually assist the Industry in better understanding employment and locational changes.

Yours sincerely,

Patrick Enright

Pat Enright
M.A. student

R.G. Ironside
Professor of Geography

APPENDIX D

FIELDWORK INTERVIEWS

FIELDWORK INTERVIEWS

November 19, 1992	Hendricks, Tieneka and Gerard Oosterhuis, Farm Family, Bow Island.
November 20, 1992	Fred Mellen, Economic Development Officer, Town of Bow Island.
November 20, 1992	Leif Anderson, Production Superintendent, Bow Island Wheat Pool.
June 29, 1993	George Rife, Regional Economic Development Officer, Smoky Lake Regional Economic Development Committee.
June 29, 1993	Gerald Holgerson, Manager, Holgerson Dairies, Smoky Lake.
June 29, 1993	Hank Holawaychuk, Mayor, Town of Smoky Lake.
June 30, 1993	Reggie Semenuk, Farmer, Smoky Lake.
June 30, 1993	Don and Bob Plumb, Farmers, Smoky Lake.
June 30, 1993	Don Christensen, Agricultural Field Officer, Alberta Agriculture, Smoky Lake.

APPENDIX E

PRODUCT GROUPS

PRODUCT GROUPS

Product Group	Industries
1	Meat, Poultry, Eggs and Fish.
2	Fruit & Vegetables, Grains, Oilseeds and Special Crops.
3	Dairy and Honey.
4	Animal Feeds, Forage and Pet Foods.
5	Bakeries, Confectionary and Snack Foods.
6	Specialty Foods, Pasta and Miscellaneous.

APPENDIX F

CODES FOR LOCATION/RELOCATION QUESTIONNAIRE RESPONSE

CODES FOR LOCATION/RELOCATION QUESTIONNAIRE RESPONSES

Original*	Modified (i.e., used in this study)
1. Access to markets	1. Access to markets
2. Availability of labour	2. Availability/ low cost labour
3. Favourable local attitude	3. Favourable local attitude
4. Personal ties to area	4. Personal/ historical ties
5. Low cost commercial site	5. Low cost site
6. Close to metro area	6. Close to metro area
7. Financing available locally	7. Financing available locally
8. Close to major highways	8. Accessability highways/railroad
9. Close to suppliers	9. Close to raw material suppliers
10. Good place to live	10. Good place to live
11. Low local taxes	11. Low local taxes
12. Business services available	12. Services available
13. Quality of local government	13. Government support/ regulations
14. Quality of public schools	14. Quality of public schools
15. Availability of air transp.	15. Availability/ low cost transport
16. Other	16. Other
	17. Availability of space

* Location factors used by Stabler and Molder (1992).

APPENDIX G

TABLES

Table G4.1

No. of Plants by Settlement Type* for
1975, 1979, 1987 and 1991

Product Group^		1975 Sett. Type 1	2	3	4	1979 Sett. Type 1	2	3	4	1987 Sett. Type 1	2	3	4	1991 Sett. Type 1	2	3	4
1	No.	41	20	50	17	35	20	45	14	35	14	42	17	52	23	53	21
	%	32	16	39	13	31	18	39	12	32	13	39	16	35	15	36	14
2	No.	12	14	8	5	7	12	9	4	12	14	16	5	21	19	29	9
	%	31	36	20	13	22	37	28	13	26	30	34	10	27	24	37	12
3	No.	12	11	28	8	9	11	22	8	16	8	23	16	16	12	19	9
	%	20	19	47	14	18	22	44	16	25	13	37	25	29	21	34	16
4	No.	21	8	12	9	13	11	20	10	13	16	40	10	17	16	28	11
	%	42	16	24	18	24	20	37	19	16	20	51	13	24	22	39	15
5	No.	105	21	62	4	21	2	1	0	28	5	6	0	47	3	8	3
	%	55	11	32	2	88	8	4	0	72	13	15	0	77	5	13	5
6	No.	11	3	2	0	13	4	1	1	35	3	3	5	40	5	4	2
	%	69	19	12	0	69	21	5	5	76	7	7	10	78	10	8	4
Total		202	77	162	43	98	60	98	37	139	60	130	53	193	78	141	55
% of Total		42	16	33	9	33	21	33	13	36	16	34	14	41	17	30	12
Total for all categories		484				293				382				467			

^Product Group
1 = Meat, Poultry, Eggs and Fish
2 = Fruit & Vegetables, Grains, Oilseeds and Special Crops
3 = Dairy and Honey
4 = Animal Feeds, Forage and Pet Foods
5 = Bakeries, Confectionary and Snack Foods
6 = Specialty Foods, Pasta and Miscellaneous

*Settlement Type
1 = Metropolitan areas
2 = Cities
3 = Towns
4 = Rural areas

Source: Alberta Agri-processing Industry Directories.

Table G4.2

Shift in Plant Locations - 1975 to 1991

Product Group^		Settlement Type* 1	2	3	4
1	No. of plants	+11	+3	+3	+4
	% of plants	+3	-1	-3	+1
2	No. of plants	+9	+5	+21	+4
	% of plants	-4	-12	+17	-1
3	No. of plants	+4	+1	-9	+1
	% of plants	+9	-2	-13	+2
4	No. of plants	-4	+8	+16	+2
	% of plants	-18	+6	+15	-3
5	No. of plants	-58	-18	-54	-1
	% of plants	+22	-6	-19	+3
6	No. of plants	+29	+2	+2	+2
	% of plants	+9	-9	-4	+4
Total					
	No. of plants	-9	+1	-21	+12
	% of plants	-1	+1	-3	+3

^Product Group
1 = Meat, Poultry, Eggs and Fish
2 = Fruit & Vegetables, Grains, Oilseeds and Special Crops
3 = Dairy and Honey
4 = Animal Feeds, Forage and Pet Foods
5 = Bakeries, Confectionary and Snack Foods
6 = Specialty Foods, Pasta and Miscellaneous

*Settlement Type
1 = Metropolitan areas
2 = Cities
3 = Towns
4 = Rural areas

Source: Alberta Agri-processing Industry Directories.

Table G4.3

Plant~ Location by Employment Size+

Sett Type*	1975 Emp. Size A	B	C	1979 Emp. Size A	B	C	1987 Emp. Size A	B	C	1991 Emp. Size A	B	C	Shift 1975 to 1991 A	B	C
1 No.	88	37	23	41	26	23	81	24	23	126	36	31	+38	-1	+8
%	59	25	16	46	29	26	63	19	18	65	19	16	+6	-6	0
2 No.	22	25	9	23	11	12	39	12	9	48	20	10	+26	-5	+1
%	39	45	16	50	24	26	65	20	15	62	26	13	+23	-19	-3
3 No.	93	11	1	64	8	1	101	19	1	111	26	4	+18	+15	+3
%	89	10	1	88	11	1	83	16	1	79	18	3	-10	+8	+2
4 No.	18	0	3	27	2	0	46	3	1	45	9	1	+27	+9	-2
%	86	0	14	93	7	0	92	6	2	82	16	2	-4	+16	+2
Total No.	221	73	36	155	47	36	267	58	34	330	91	46	+109	+18	+10
%	67	22	11	65	20	15	74	16	10	71	20	9	+4	-2	-2

~Plants for which employment data was not available were excluded from this table (Note 1, Chapter 4).

*Settlement Type
1= Metropolitan areas
2= Cities
3= Towns
4= Rural areas

+Employment Size
A= 1-25 employees
B= 26-100 employees
C= over 100 employees

Source: Alberta Agri-processing Industry Directories.

Table G4.4

Location of Product Group 1 Plants by Employment Size+

Sett Type*		1975 Emp. Size A	B	C	1979 Emp. Size A	B	C	1987 Emp. Size A	B	C	1991 Emp. Size A	B	C	Shift 1975 to 1991 A	B	C
1	No.	12	10	13	9	12	13	14	10	10	28	9	15	+16	-1	+2
	%	34	29	37	27	35	38	41	29	29	54	17	29	+20	-12	-8
2	No.	3	6	5	7	4	5	9	0	5	14	4	5	+11	-2	0
	%	21	43	36	44	25	31	64	0	36	61	17	22	+40	-26	-14
3	No.	13	2	0	35	0	0	36	3	1	47	4	2	+34	+2	+2
	%	87	13	0	100	0	0	90	7	3	89	8	3	+2	-5	+3
4	No.	2	0	0	11	0	0	13	1	0	19	1	1	+17	+1	+1
	%	100	0	0	100	0	0	93	7	0	90	5	5	-10	+5	+5
Total	No.	30	18	18	62	16	18	72	14	16	108	18	23	+78	0	+5
	%	46	27	27	65	16	19	71	14	16	73	12	15	+27	-15	-12

*Settlement Type
1= Metropolitan areas
2= Cities
3= Towns
4= Rural areas

+Employment Size
A= 1-25 employees
B= 26-100 employees
C= over 100 employees

Source: Alberta Agri-processing Industry Directories.

Table G4.5

Location of Product Group 2 Plants by Employment Size+

Sett Type*		1975 Emp. Size A	B	C	1979 Emp. Size A	B	C	1987 Emp. Size A	B	C	1991 Emp. Size A	B	C	Shift 1975 to 1991 A	B	C
1	No.	4	4	2	3	1	3	5	4	2	11	6	4	+7	+2	+2
	%	40	40	20	43	14	43	46	36	18	52	29	19	+12	-11	-1
2	No.	3	6	3	6	4	2	4	7	3	8	7	4	+5	+1	+1
	%	25	50	25	50	33	67	29	50	21	42	37	21	+17	-13	-4
3	No.	4	0	1	4	4	1	10	6	0	20	8	1	+16	+8	0
	%	80	0	20	44	44	12	63	37	0	69	28	3	-11	+28	-17
4	No.	3	0	0	2	1	0	14	1	0	8	1	0	+5	+1	0
	%	100	0	0	67	33	0	93	7	0	89	4	0	-11	+4	0
Total	No.	14	10	6	15	10	6	33	18	5	47	22	9	+33	+12	+3
	%	47	33	20	48	32	20	59	32	9	60	28	12	+13	-5	-8

*Settlement Type
1 = Metropolitan areas
2 = Cities
3 = Towns
4 = Rural areas

+ Employment Size
A = 1-25 employees
B = 26-100 employees
C = over 100 employees

Source: Alberta Agri-processing Industry Directories.

Table G4.6

Location of Product Group 3 Plants by Employment Size+

Sett Type*		1975 Emp. Size A	B	C	1979 Emp. Size A	B	C	1987 Emp. Size A	B	C	1991 Emp. Size A	B	C	Shift 1975 to 1991 A	B	C
1	No.	3	2	6	3	1	2	9	1	5	8	4	4	+5	+2	-2
	%	27	18	55	50	17	33	60	7	33	50	25	25	+23	+7	-30
2	No.	2	8	0	3	1	1	6	1	1	5	6	1	+3	-2	+1
	%	20	80	0	60	20	20	75	12	12	42	50	8	+22	-30	+8
3	No.	21	4	0	10	0	0	19	1	0	15	4	0	-6	0	0
	%	84	16	0	100	0	0	95	5	0	79	21	0	-5	+5	0
3	No.	5	1	0	6	0	0	15	0	1	8	1	0	+3	0	0
	%	83	17	0	100	0	0	94	0	6	89	11	0	+6	-6	0
Total	No.	31	15	6	22	2	3	49	3	7	36	15	5	+5	0	-1
	%	60	29	11	81	8	18	86	5	12	64	27	9	+4	-2	-2

*Settlement Type
1 = Metropolitan areas
2 = Cities
3 = Towns
4 = Rural areas

+Employment Size
A = 1-25 employees
B = 26-100 employees
C = over 100 employees

Source: Alberta Agri-processing Industry Directories.

Table G4.7

Location of Product Group 4 by Employment Size+

Sett Type*		1975 Emp. Size A	B	C	1979 Emp. Size A	B	C	1987 Emp. Size A	B	C	1991 Emp. Size A	B	C	Shift 1975 to 1991 A	B	C
1	No.	11	6	0	6	1	2	10	2	1	13	1	3	+2	-5	+3
	%	65	35	0	67	11	22	77	15	8	76	6	18	+11	-29	+18
2	No.	6	1	0	6	1	1	14	2	0	14	2	0	+8	+1	0
	%	86	14	0	75	12	12	88	12	0	88	12	0	+2	-2	0
3	No.	7	5	0	14	3	0	31	5	0	21	7	0	+14	+2	0
	%	58	42	0	82	18	0	86	14	0	75	25	0	+17	-17	0
4	No.	6	2	0	7	1	0	9	1	0	8	3	0	+2	+1	0
	%	75	25	0	88	12	0	90	10	0	73	27	0	-2	+2	0
Total	No.	30	14	0	33	6	3	64	10	1	56	13	3	+26	-1	+3
	%	68	32	0	79	14	7	85	14	1	78	18	4	+10	-14	+4

*Settlement Type
1= Metropolitan areas
2= Cities
3= Towns
4= Rural areas

+Employment Size
A= 1-25 employees
B= 26-100 employees
C= over 100 employees

Source: Alberta Agri-processing Industry Directories.

Table G4.8

Location of Product Group 5 by Employment Size+

Sett Type*	1975 Emp. Size A	B	C	1979 Emp. Size A	B	C	1987 Emp. Size A	B	C	1991 Emp. Size A	B	C	Shift 1975 to 1991 A	B	C
1 No.	50	12	2	11	7	3	14	4	4	3	12	5	-47	0	+3
%	78	19	3	52	34	14	64	18	18	15	60	25	-63	+41	+22
2 No.	8	2	0	1	0	0	5	0	0	3	0	0	-5	-2	0
%	80	20	0	100	0	0	100	0	0	100	0	0	+20	-20	0
3 No.	48	0	0	1	0	0	5	1	0	6	2	0	-42	+2	0
%	100	0	0	100	0	0	83	17	0	75	25	0	-25	+25	0
4 No.	2	0	0	0	0	0	0	0	0	1	2	0	-1	+2	0
%	100	0	0	0	0	0	0	0	0	33	67	0	-67	+67	0
Total No	100	14	2	13	7	3	24	5	4	13	16	5	-87	+2	+3
%	86	12	2	57	30	13	73	15	12	38	47	15	-46	+35	+12

*Settlement Type
1= Metropolitan areas
2= Cities
3= Towns
4= Rural areas

+Employment Size
A= 1-25 employees
B= 26-100 employees
C= over 100 employees

Source: Alberta Agri-processing Industry Directories.

Table G4.9

Location of Product Group 6 by Employment Size+

Sett Type*	1975 Emp. Size A	B	C	1979 Emp. Size A	B	C	1987 Emp. Size A	B	C	1991 Emp. Size A	B	C	Shift 1975 to 1991 A	B	C
1 No.	8	3	0	9	4	0	29	3	1	36	4	0	+28	+1	0
%	73	27	0	69	31	0	88	9	3	90	10	0	+17	-17	0
2 No.	0	2	1	0	1	3	1	2	0	4	1	2	+4	-1	+1
%	0	67	33	0	25	75	33	67	0	57	14	29	+57	-53	-4
3 No.	0	0	0	0	1	0	0	3	0	2	1	1	+2	+1	+1
%	0	0	0	0	100	0	0	100	0	50	25	25	+50	+25	+25
6 No.	0	0	0	1	0	0	5	0	0	1	1	0	+1	+1	0
%	0	0	0	100	0	0	100	0	0	50	50	0	+50	+50	0
Total No.	8	5	1	10	6	3	35	8	1	43	7	3	+35	+2	+2
%	57	36	7	52	32	16	80	18	2	81	13	6	+24	-23	-1

*Settlement Type
1= Metropolitan areas
2= Cities
3= Towns
4= Rural areas

+Employment Size
A= 1-25 employees
B= 26-100 employees
C= over 100 employees

Source: Alberta Agri-processing Industry Directories.

Table G4.10

Frequency of First, Second and Third Factors for Current Location

Location Factor	First	Second	Third
Personal/Historical ties	51	16	11
Close to raw material supplies	48	22	8
Access to markets	41	33	14
Low cost site	20	9	10
Availability & low cost transp	4	7	6
Close major highway/rail	4	12	4
Government support/regulations	4	3	-
Services available	3	8	8
Low local taxes	2	6	4
Favourable local attitude	1	-	2
Availability/low cost labour	1	10	11
Availability of space		7	5
Financing available locally		2	1
Good place to live		1	1
Other	6	6	7
Total	185	142	92

Source: Questionnaire Survey.

Table G4.11

Frequency of First, Second and Third Factors for Relocation

Location Factor	First	Second	Third
Availability of space	16	6	4
Access to markets	5	4	5
Close to raw material supplies	4	1	2
Personal/Historical ties	3	3	1
Services available	3	2	-
Close major highway/rail	2	-	-
Low cost site	1	1	1
Government support/regulations	1		
Availability/low cost labour	-	2	-
Low local taxes	-	1	-
Availability & low cost transp	-	1	2
Other	3	4	-
Total	38	25	15

Source: Questionnaire Survey.

Table G4.12

Frequency of First, Second and Third Factors for Anticipated Locational Change

Location Factor	First	Second	Third
Availability of space	13	5	1
Access to markets	11	6	3
Low local taxes	4	1	1
Availability/low cost labour	2	1	2
Close to raw material supplies	2	5	2
Services available	2	1	1
Personal/Historical ties	1	-	1
Low cost site	1	5	3
Close to metro area	1	-	-
Availability & low cost transp	1	-	1
Government support/regulations	1		
Close major highway/rail	-	2	-
Good place to live	-	-	1
Other	3	3	3
Total	42	29	19

Source: Questionnaire Survey.

Table G5.1

Questionnaire Responses by Product Group

Product Group	Sample Size	Usable Responses	Response Rate %
1. Meat, Poultry, Eggs, Fish	140	78	56
2. Fruit & Veg, Grains, Spec. Crops	76	40	53
3. Dairy, Honey	49	24	49
4. Animal Feeds, Forage, Pet Foods	68	29	43
5. Bakeries, Conf., Snack Foods	60	27	45
6. Spec. Foods, Pasta, Misc.	48	17	35
Total	441	215	49

Source: Questionnaire Survey.

Table G5.2

Respondent Plant Background

Company Type	Independent Company 155	Branch of Parent Company 59

When operation began at this location	Pre-1975	1975-1981	1982-1985	1986-1991
	96	47	37	35

	Employment					
	Total Male	Total Female	Total	Average No. Male	Average No. Female	Average Total Employment
Full-time	5570	2464	8817	26	11	41
Part-time	803	562	1789	4	3	8
	6373	3026	10606	30	14	49

	Wage Bill	
	Total	Average per Establishment
Wage Bill	$M 275.6	$M 1.70

Source: Questionnaire Survey.

Table G5.3

Participation in Government Assisted Projects by Respondents

	Product Group^						
	1	2	3	4	5	6	Total
NPA~1	3	2	1	2	-	1	9
NPA 2.....	9	3	1	-	-	-	13
APMA~.....	8	4	3	3	2	4	24
More than one programme.....	3	6	2	10	4	-	25
Total Participation	23	15	7	15	6	5	71
% Participation....	30	38	30	52	22	29	
Number plants that did not participate	54	24	16	14	21	12	141
Total respondents...	77	39	23	29	27	17	212

^Product Group
1 = Meat, Poultry, Eggs and Fish
2 = Fruit & Vegetables, Grains, Oilseeds and Special Crops
3 = Dairy and Honey
4 = Animal Feeds, Forage and Pet Foods
5 = Bakeries, Confectionary and Snack Foods
6 = Specialty Foods, Pasta and Miscellaneous

~Nutritive Processing Agreement (NPA)
~Agricultural Processing and Marketing Agreement (APMA)

Source: Questionnaire Survey.

Table G5.4

Importance of Government Assisted Projects
to Investment Decision

	Product Group^						
	1	2	3	4	5	6	Total
Importance of program asst in making inv. decision							
very important	9	3	3	7	2	2	26
important	11	9	3	3	2	3	31
not important	2	2	1	5	2	-	12

^Product Group
1 = Meat, Poultry, Eggs and Fish
2 = Fruit & Vegetables, Grains, Oilseeds and Special Crops
3 = Dairy and Honey
4 = Animal Feeds, Forage and Pet Foods
5 = Bakeries, Confectionary and Snack Foods
6 = Specialty Foods, Pasta and Miscellaneous

Source: Questionnaire Survey.

Table G5.5

Employment Impact of Government Assisted Projects

	Product Group^						
	1	2	3	4	5	6	Total
Impact of assisted projects on employment							
additional emply. created..	17	7	5	9	4	4	46
existing emply. secured....	2	5	1	5	1	-	14
decline in emply.....	-	-	-	-	-	-	0
no change.....	4	2	1	1	1	-	9
Impact of assisted projects on employees skill level							
increased.....	16	4	3	7	2	4	36
no change.....	6	7	4	7	4	-	28
decreased.....	-	-	-	-	-	-	0
Impact of assisted projects on employees productivity							
increased.....	18	6	3	10	4	3	44
no change.....	4	5	4	4	2	1	20
decreased.....	-	-	-	-	-	-	0
Impact of assisted projects on value added per employee							
increased.....	13	7	3	10	3	4	40
no change.....	8	3	4	3	3	-	21
decreased.....	-	-	-	-	-	-	0
Impact of assisted projects on capital invested per employee							
increased.....	12	8	5	11	3	3	42
no change.....	7	3	2	3	3	-	18
decreased.....	-	-	-	-	-	-	0

^Product Group
1 = Meat, Poultry, Eggs and Fish.
2 = Fruit & Vegetables, Grains, Oilseeds and Special Crops.
3 = Dairy and Honey.
4 = Animal Feeds, Forage and Pet Foods.
5 = Bakeries, Confectionary and Snack Foods.
6 = Specialty Foods, Pasta and Miscellaneous.

Source: Questionnaire Survey.

Table G5.6

Employment Created in Government Assisted Projects

Product Group^	NPA 1+			NPA 2			APMA+			Total		
	*O	~P	Total	O	P	Total	O	P	Total	O	P	Total
1	35	3	39	188	13	20	11	4	25	234	20	267
2	31	3	34	6	-	6	28	3	31	65	6	71
3	16	1	17	27	5	32	43	11	53	86	17	102
4	21	4	25	44	6	56	14	5	19	79	15	100
5	8	-	8	12	1	13	4	4	8	24	5	29
6	-	-	21	-	-	-	8	2	10	8	2	31
Total	111	11	144	277	25	310	108	29	146	496	65	600

*Production Operative
~Professional, Technical & Admin.

^Product Group
1 = Meat, Poultry, Eggs and Fish
2 = Fruit & Vegetables, Grains, Oilseeds and Special Crops
3 = Dairy and Honey
4 = Animal Feeds, Forage and Pet Foods
5 = Bakeries, Confectionary and Snack Foods
6 = Specialty Foods, Pasta and Miscellaneous

+Nutritive Processing Agreement (NPA)
+Agricultural Processing and Marketing Agreement (APMA)

Source: Questionnaire Survey

Table G5.7

NPA~ & APMA~ Projects and Offers by Industry Sector

Industry	NPA 1~ No. Projects	NPA 1~ Amt. Offered $	NPA 2 No Projects	NPA 2 Amt. Offered $	APMA~ No. Projects	APMA~ Amt. Offered $
Alfalfa	13	1,578,998	12	1,623,719	19	3,268,979
Biotech.	-	-	-	-	2	953,454
Bakeries	25	437,325	30	456,666	56	1,637,435
Canola	15	947,342	11	3,614,735	3	563,684
Dairy	11	1,296,162	13	2,045,060	27	2,748,342
Feeds	33	1,951,962	47	2,555,967	44	3,478,392
Fert.	36	729,051	-	-	-	-
Genetics	-	-	-	-	3	760,646
Labels/Cont.	-	-	-	-	3	215,130
Meat	53	3,146,459	47	3,946,651	85	3,690,118
Seeds	-	-	-	-	18	1,807,227
Vegetables	10	197,463	10	404,806	34	2,264,796
Misc.	28	2,806,691	36	4,236,838	112	22,867,064
Total	224	13,091,453	206	18,884,442	406	44,255,267

~Nutritive Processing Agreement (NPA)
~Agricultural Processing and Marketing Agreement (APMA)

Source: Alberta Agriculture, Annual Reports, 1976 to 1990/1991.

Table G5.8

Location of Jobs Created in Government Assisted Projects

Programme		Settlement Type* 1	2	3	4	Total
Nutritive Processing Agreement 1.....	No.	11	42	82	9	144
	%	8	29	57	6	100
Nutritive Processing Agreement 2.....	No	24	159	119	8	310
	%	8	51	38	3	100
Agricultural Processing & Marketing Agr....	No	47	20	73	6	146
	%	32	14	50	4	100
Total	No	82	221	274	23	600
	%	14	37	45	4	100

*Settlement Type
1 = Metropolitan areas
2 = Cities
3 = Towns
4 = Rural areas

Source: Questionnaire Survey.

Table G5.9

Employee Residence of Jobs Created in Government Assisted Projects

Programme		Urban	Rural	Total
NPA~1	No	74	40	114
	%	65	35	100
NPA 2	No	234	75	309
	%	76	24	100
APMA~	No	86	59	145
	%	59	41	100
Total	No	394	174	568
	%	69	31	100

~Nutritive Processing Agreement (NPA)
~Agricultural Processing and Marketing Agreement (APMA)

Source: Questionnaire Survey.

Table G5.10

Level of Raw Materials (R.M.) Purchased Locally
(i.e., within 100 km)

	Settlement Type							
	Metro		City		Town		Rural	
% R.M.	Responses No.	%	Responses No.	%	Responses No.	%	Responses No.	%
0-25%	19	23	6	21	11	14	5	20
26-50%	12	15	6	21	9	12	3	12
51-75%	16	20	6	21	12	16	3	12
Over 75%	34	42	10	36	44	58	14	56
Total	81	100	28	99	76	100	25	100

Source: Questionnaire Survey.

Table G5.11

Difficulty in Finding Qualified, Skilled Labour Locally

	Settlement Type							
	Metro		City		Town		Rural	
	Responses		Responses		Responses		Responses	
	No.	%	No.	%	No.	%	No.	%
No difficulty	24	30	5	17	16	22	9	36
Some difficulty	39	48	14	48	34	47	8	32
Considerable difficulty	16	20	8	28	12	16	2	8
Great difficulty	2	2	2	7	11	15	6	24
Total	81	100	29	100	73	100	25	100

Source: Questionnaire Survey.

Table G5.12

Employee One-way Commutes to Work by Settlement Type

Commute	Settlement Type: Percentage of Workforce in Metro	City	Town	Rural	Total
Under 26 Km	85	80	76	81	81
26-50 Km	9	13	8	9	9
Over 50 Km	2	4	4	3	3

Source: Questionnaire Survey.

Table G5.13

Future Employment Trends

	Settlement Type							
	Metro		City		Town		Rural	
Employment Trend	Responses No.	%	Responses No.	%	Responses No.	%	Responses No.	%
Increase	33	40	8	27	39	52	15	60
No change	39	48	17	59	31	41	8	32
Decrease	10	12	4	14	5	7	2	8
Total	82	100	29	100	75	100	25	100

Source: Questionnaire Survey.

Table G6.1

Farms Classified by Type - 1987

	County of Smoky Lake		County of Forty Mile	
	No. of Farms	% of Farms	No. of Farms	% of Farms
Dairy	8	1.3	5	0.6
Cattle	278	45.0	126	15.8
Pigs	23	4.0	8	1.0
Poultry	3	0.5	8	1.0
Wheat	27	4.0	507	63.5
Feed Grains	166	27.0	-	-
Canola	45	7.0	-	-
Small Grain	-	-	97	12.15
Fruit, Vegetables	-	-	5	0.6
Field Crops	-	-	14	1.75
Misc. Specialty	30	5.0	-	-
Livestock Combination	23	4.0	11	1.38
Other Combination	12	2.0	17	2.13

Source: Alberta Agriculture, Smoky Lake and Bow Island Community Brochure (1992).

Table G6.2

Crop Acreages - 1991

	County of Forty Mile		Smoky Lake County	
	Acreages	%	Acreages	%
Wheat	112,516	63.2	32,535	16.2
Oats	633	0.4	18,506	9.2
Barley	5,453	3.1	53,581	26.6
Rye	141	-	267	.1
Alfalfa	-	-	50,718	25.2
Hay	-	-	17,637	8.8
Peas	-	-	1,781	0.9
Canola	3,781	2.1	26,093	13.0
Flax	1,842	1.0	-	-
Beans	22,400	12.6	-	-
Corn	10,500	5.8	-	-
Potatoes	1,210	0.7	-	-
Sugar Beet	3,750	2.1	-	-
Sunflowers	2,700	1.6	-	-
Misc. Crops	13,211	7.4	-	-
Total	178,137	100.0	201,118	100.0

Source: Alberta Agriculture, Smoky Lake and Bow Island Community Brochure (1992).

Table G6.3

Population Change 1941-1991

	1941	1951	1961	1966	1974	1981	1986	1991
Bow Island Town								
No.	291	653	1,122	1,162	1,181	1,491	1,650	1,484
% change.		+124	+72	+4	+2	+26	+11	-10
County Forty Mile								
No		4,700	4,204	4,204	3,728	3,451	3,335	3,193
% change.			-11	-	-11	-7	-3	-4
Smoky Lake								
No.	430	491	626	821	1,080	1,080	1,036	1,057
% change..		+14	+27	+31	+32	-	-4	+2
County of Smoky Lake								
No.		8,200	6,792	6,147	3,439	2,910	2,789	2,689
% change..			-17	-9	-44	-15	-4	-4

Source: Statistics Canada Catalogue 95-372 Part A (1991), Alberta Economic Development and Trade (1986a and b), Statistics Canada, Catalogue 94-117 Lot 1 (1986), Alberta Business Development and Tourism (1974a and b), Department of Industry and Development (1963).

Table G6.4

Active and Dependent Populations 1986 & 1991

		Bow Island	Smoky Lake	County Forty Mile	County Smoky Lake	Alberta
Active Pop. (age 15-65)	1986..	59.8%	48.3%	65.5%	68.8%	68.3%
	1991..	57.3%	48.3%	63.4%	65.3%	67.3%
Dependent Pop (0-14 & 65+)	1986..	40.2%	51.7%	34.5%	31.2%	31.7%
	1991..	42.7%	51.7%	36.6%	34.7%	32.7%

Source: Statistics Canada, Catalogue 94-117 (1986).

Table G6.5

Family Income and Labour Force Participation Rates, 1986

	Bow Island	Smoky Lake	Alberta	Canada
Av. Family Income....	$37,665	$30,658	$40,740	$37,827
Labour Force Participation rate male...	79.5	60.0	82.7	77.5
Female.....	62.4	53.0	62.5	55.9

Source: Statistics Canada, Catalogue 94-117 (1986).

Table G6.6

Bow Island Employment 1974 & 1986

1974		1986	
Agriculture	179	Primary Ind.	150
Agriculture Ser.	78	Manufacturing	15
Construction	19	Construction	65
Manufacturing	19	Trans/comm/util	65
Trns/com/uti	39	Trade	180
Retail	34	F I R E*	35
Wholesale	15	Community,bus/per service	280
F I R E*	5	Public admn & defence	70
Services	29		
Government	10		
Education	24		
Others	34		
Total	485	Total	860

*F I R E represents Financial, Insurance and Real Estate sectors.

Sources: Alberta Economic Development and Trade (1986a), Alberta Business Development and Tourism (1974a).

Table G6.7

Smoky Lake Employment 1974 & 1986

1974		1986	
Agriculture	66	Primary Ind.	50
Agriculture Ser.	3	Manufacturing	20
Construction	33	Construction	20
Manufacturing	49	Trans/comm/util	50
Education	83	Trade	110
Retail	33	F I R E*	15
Government	13	Community,bus/per service	130
F I R E*	50	Public admn & defence	35
Total	330	Total	430

*F I R E represents Financial, Insurance and Real Estate sectors.

Source: Alberta Economic Development and Trade (1986b), Alberta Business Development and Tourism (1974b).

Table G6.8

Unemployment Rates 1976, 1981 and 1986

	1976		1981		1986	
	Male	Female	Male	Female	Male	Female
Bow Island						
No. unemployed			10	10	25	30
Unemployment rate			3	4	5	8
Smoky Lake						
No. unemployed	0	5	10	0	25	25
Unemployment rate	0	4	4	0	11	12

Sources: Alberta Economic Development and Trade (1986a and b), Alberta Business Development and Tourism (1974a and b).